



PatternMaker Software

PatternMaker Version 4

USER'S MANUAL

PatternMaker for Windows

for PC-compatible computers running Windows 95/98/NT

Version 4

PatternMaker Software

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SECTION ONE: INTRODUCTION

CHAPTER 1: FIRST THINGS FIRST

WELCOME TO PATTERNMAKER

PatternMaker is a computer-aided design (CAD) program designed especially for clothing pattern design. PatternMaker makes it easy and fast to make clothing patterns, and lets you automatically resize your patterns. In short, PatternMaker lets you do everything you used to do with scissors, pencil, and paper, but much faster. This program has many features that are different than any other program, but you can learn to use it quickly with this manual.

Features of PatternMaker include:

- *Drawing.* Draw up new patterns using the same procedures you use now to draw patterns on paper. Change, edit, or save existing patterns.
- *Grading.* Grade your pattern according to your own grading rule. Make your own pattern in Size 8, for example, and PatternMaker can convert the pattern to sizes 10, 12, and 14. With PatternMaker Expert or Marker version, you can make a grading rule simply, easily, and quickly, and apply your grading rule to any other pattern.
- *Basic blocks.* Use PatternMaker's women's library of predesigned garments to create basic patterns from custom measurements. For slacks, for example, you can tell PatternMaker the length, waist and hip measurements, and PatternMaker will make the pattern to fit these measurements. Modify the basic pattern or add styling to make your own pattern. Lingerie, men's, children's, and other collections can be purchased separately.
- *Printing.* PatternMaker lets you print your patterns on any printer that is supported by a Windows driver, including dot-matrix, ink-jet or laser printers, and large-format pen plotters.
- *Special symbol libraries.* These contain commonly used symbols such as buttonholes, arrows, etc. which you can put in your pattern. A basic symbol library is provided with PatternMaker. If you have PatternMaker Expert or Marker version, creating your own library is as easy as saving a file.

Advanced Features:

PatternMaker Home version has the basic features you need to make and adjust patterns. PatternMaker Expert and Marker are for the professional patternmaker or designer and has many powerful features for the serious pattern designer. These include:

- *Digitizers.* Use a digitizing pad to "trace" patterns from paper originals or books. If the original was not full scale, you can automatically expand it to life size.
- *Make your own grading rules.* Designing and saving your own grading rules is easy with PatternMaker. You can easily apply your grading rules to any pattern.
- *Make symbol and object libraries.* You can make your own libraries of commonly used symbols and pieces, and read these into new patterns you create. Anything you can draw can be saved in a library.

- *Marking.* If you have PatternMaker Marker version, PatternMaker lets you arrange your pieces and print production markers. Special functions let you pack the pieces together for maximum efficiency, set cut ratios, and print out the amount of material used and other information.

What's new in Version 4?

We've been listening to customer feedback, and we've incorporated the most popular requests into this new version:

- *32-bit* PatternMaker is now a true 32-bit program, which means, among other things, that you can use long filenames
- *.DXF support* PatternMaker can now open and save files in the .DXF format. This allows you to exchange drawings among other drafting and drawing programs.
- *Pop-up icon help* We've added labels to the icons to let you know what each one does.
- *Printing* The new Print Preview window lets you know in advance how many sheets of paper will be required to print your drawing. There are also two new Print commands to let you print a certain area or certain objects, rather than the whole drawing.
- *More Help* The Help system has been greatly enhanced, making it easier to find what you're looking for.

LEARNING THE PROGRAM

OK, so you've got PatternMaker, now what? Here's a strategy on getting started:

- a) Read chapters 1 and 2 of this manual.
- b) Install the program. Tutorial #1 will guide you through installing and starting PatternMaker.
- c) Run some macros – the instruction booklet for the macros will give you a quick start. This will give you some patterns to work with as you learn what PatternMaker can do.
- d) Read the sections on how to run commands, to understand the basics of using PatternMaker.
- e) Read the sections on drawing and editing (Chapter 3: Getting Started). Don't get bogged down; if there's something you don't understand, it will probably make more sense after you've done the tutorials.
- f) Do the tutorials. Be sure to do them in order. Once you've learned something in a tutorial, feel free to use it. Read the remaining chapters of this manual while you are working through the tutorials. Use Section 5 (Menu Commands) to look up any commands you don't understand.
- g) Make some patterns on your own. Remember, this is what you bought PatternMaker for. The fastest way to learn is by doing – this is as true for PatternMaker as anything else. You'll find you don't need to know every single command before you can start getting to work.
- h) Read the rest of this manual systematically. Try every command at least once.

Use the manual, the tutorials, and the manual together to help you learn PatternMaker. Use the on-line Help system to get help with a command while you are using it.

Sections 1 through 4 of the main manual text explain the basic concepts, Section 5 gives the details of how each command works, and the tutorials guide you through the important features so you can see them in actual use.

Once you learn how to do a few commands, you can start using PatternMaker to make your own patterns. As you get comfortable with the program and develop your own techniques, keep referring back to the manual and you will keep learning new things. If you take a disciplined, organized approach to learning this program, you will be making patterns in a short time.

SETTING UP YOUR COMPUTER

If you have purchased the entire PatternMaker system, the program will already be installed on your computer for you. Otherwise, you can install PatternMaker yourself by running the Setup program on the PatternMaker disk. Before you can install PatternMaker, you need to make sure that your computer is set up and running Windows.

1. Make sure your computer is set up correctly according to the manufacturer's directions.
2. Install PatternMaker on your computer (see below). The installation program will automatically install PatternMaker on your computer.
3. If you are going to use a printer (or plotter), set it up according to the manufacturer's directions and make sure you know how it is connected. You need to know whether the printer is hooked up to a serial or parallel port, and the number (1 or 2), of the serial or parallel port. Consult your Windows manual for directions on how to select a printer.

Note: If you are using the Ioline Summit 72" plotter, be aware that it does not have a Windows device driver and therefore has to be configured from within PatternMaker. See Chapter 6, Selecting and Setting Up a Printer.

INSTALLATION

Installation of PatternMaker is easy. Just follow these simple steps:

1. Put the PatternMaker CD in your CD-ROM drive.
2. Click the Start button on the taskbar, then click "Run..." and type `d:\demo32.exe`. (If your CD drive is not drive D:, substitute the appropriate letter.) Click the "Okay" button.
3. Select the file "pat32-ver4.dbd" from the file dialog box that opens, and click "Open." This runs the PatternMaker CD browser.
4. Follow the prompts to install the components you want.

By default, PatternMaker expects to find all necessary files in the "C:\Program Files\Patternmaker Software\PatternMaker" folder. If you prefer to install PatternMaker in a different folder or on a different drive, specify the proper folder when the Setup program asks you for it.

SECURITY KEYS

Some versions of PatternMaker require the use of a "security key." The security key protects against unauthorized use of the software. It is a small squarish device that looks like a plug adapter. If you did not receive a security key with your package, your version does not require it.

The security key system allows you to install PatternMaker on more than one computer, and use any one copy at a time. You get one key for each copy of PatternMaker that you license. When you purchase

PatternMaker, you are licensed to install it on as many computers as you like. When you want to use PatternMaker on a different computer (for instance, to take some work home on your laptop computer), just transfer the key to that computer.

Note: PatternMaker Home Version does not require a security key. However, you are only licensed to use it on one computer at a time. If you have more than one person using PatternMaker at a time, you must purchase one copy for each user.

To use your security key, simply plug it into a parallel port on your computer. Normally, you can plug the key into any 25-pin plug on your computer. Do not use an adapter to make the key fit – if it doesn't fit the security key, it's not a parallel port. You have to have the security key plugged in when you start PatternMaker and keep it plugged in while you are using the program. If you start the program and get a warning that the key is not installed, put the key in and then restart the program.

If your computer has more than one parallel port, you can plug the key into any of them and PatternMaker will detect it. If you have a printer or other device already plugged into the port, just plug the key in and then plug the printer into the back of the key. The printer will work exactly as if the key wasn't there.

TIME OUT FOR BASICS

If you are brand new to computers, take some time to go over this section. Make sure you are familiar with the following terms, since they will be used frequently as you read through the manual and the tutorials.

- **click** Move the mouse around until the point of the mouse cursor is pointing where the directions instruct you. Press the left button once and then release it. If the directions say "click," it always means one click. If they mean two clicks, they will say "double-click." Also, when this manual simply says "click," it means with the left button. In PatternMaker, "right-clicking," has special functions.
- **double-click** Move the mouse around until the point of the mouse cursor is pointing where the directions instruct you. Press and release the left button twice, quickly. Be careful not to move the mouse as you do this. If nothing seems to happen, try clicking faster, and be sure the mouse does not move.
- **icons** These are small pictures that represent actions. They are shortcuts to commonly used program commands. Click once on an icon to execute its command.
- **menu bar** The row of words across the top of the PatternMaker window. This is where you find all the commands of the program. When you click on one of the menu items, you get a "drop-down menu". These menus are associated with the menu item that they drop down from. For example, the menu that appears when you click the word "File" is called the **File** menu.

If you need more help with any of these, you can find full details in your Windows manual.

MANUAL CONVENTIONS

As you read through this manual, you will notice that some words or phrases appear in different typefaces. Here's what it all means:

- Keys on the keyboard are represented by capital letters, and are enclosed in brackets:
Example: <ESC>
- When you see two keyboard keys joined by a "+" sign, it means you should press the first key, and while holding it down, press the second key. Then release both.
Example: <CTRL>+<F2>
- Computer prompts appear in Courier:
Example: Rotate about what point?
- Items on the menus appear in quotes, and the name of the menu appears in bold type:
Example: Click "Save" on the **File** menu.
- Hints, warnings, and examples are outlined and appear in italics:

Hint: Use the extensive Help system for assistance with PatternMaker.

STARTING PATTERNMAKER

When you install PatternMaker, the Setup program will create a PatternMaker group on your Programs menu. To run PatternMaker, navigate from the Start Menu, to the Programs menu, and then to the PatternMaker group, and click on the PatternMaker icon – it looks like a needle and thread.

Note: If your version of PatternMaker uses a security key, be sure it is plugged in.

This will start the program. To expand the PatternMaker window to fill the entire screen, click the expand button in the PatternMaker window (it's the button at the upper right corner of the window that looks like a square).

At this point you may want to browse through the manual and try some of the commands, or you can start directly on the tutorials.

GETTING HELP

There are several avenues available to you if you need help.

1. First, check the Help file. It has been expanded to make it easier to find what you need. You can access the Help file from the Help menu, or by typing ? during a command to access the context-sensitive help.
2. Next, check the Index of this manual, and the Index of the Tutorial. There may be something in the printed documentation that isn't in the Help file.
3. If it's a piece of terminology that's puzzling you, check the Glossary in this manual.
4. Finally, you can contact technical support by phone or by e-mail. Also consider joining the PatternMaker User's Group e-mail discussion list. Check the PatternMaker web site for instructions on how to join:

www.patternmaker.com

You can use the link in the “About” box (located on the Help menu) to automatically launch your browser and go directly to our site.

5. As long as you’re there, check the website for an answer to your question. We’ve posted answers to many frequently asked questions, and you may find what you need in that reference.

SECTION TWO: LEARNING THE BASICS

CHAPTER 2: THE PATTERNAKER ENVIRONMENT

PARTS OF THE SCREEN

After you start PatternMaker and expand the window to full size, the screen looks like the illustration (see following page). The standard Windows components – the mouse, the drop-down menus, and the dialog boxes that appear from time to time – work the same way they do with any other Windows program. For those of you who aren't already familiar with these things, here's what it all means:

The screen is composed of five areas:

1. The menu bar area – the white and black bars at the top
2. The Status Bar – the black bar just below the menu bar
3. The icon menu area – the area of icons (pictures) on the left
4. The drawing area – the large black area
5. The command line (prompt) area – the blue bar at the bottom

Note: You may see some minor differences in the screen, depending on your PatternMaker version, and whether you have a digitizer installed.

MENU BAR

This is where you find the drop-down menus. Click the left mouse button on any item and a list of commands will pop down. Click on your choice to execute a command. Click anywhere else on the screen to cancel the command selection.

You can also select these menu items by typing. Each menu header and each menu item has a key letter underlined. Hold down the <ALT> key while typing the key letter for a menu, then type the letter of the specific item you want. For instance, you can select the “Open” command from the **File** menu by typing:

<ALT>+F
O

Commands which are not currently available are grayed-out in the menu display.

STATUS BAR

The Status Bar has areas showing the display mode (Marker version only), current color, fill pattern, line style, layer, the x-y mouse coordinates, the latest command, and, if installed, the digitizer mode. Any new objects you draw will have the current color and be on the current layer. The areas showing the display mode, digitizer mode, color, pattern, line style, and layer also act as icons for their respective commands(see below).

The area at the right of the Status Bar gives the current command. If the command name is in green, you are currently running that command. If it is purple, you are done with the command. You can repeat a

command that appears in purple by simply clicking the mouse in the drawing area (see Selecting a Command, in Chapter 2: The PatternMaker Environment).

If you have a digitizing tablet installed, an icon will appear to the right of the command. This icon shows whether the digitizer is in mouse or absolute mode (see Chapter 19:). If you don't have a digitizer, the icon doesn't appear.

ICON MENU

These icon buttons give you quick access to the most commonly used commands in PatternMaker. An icon is a little picture that represents a command. If you click the left mouse button on an icon, that command is activated. You will see the command name in the menu bar and in the prompt area. If you click the right mouse button on an icon, the Help for that command will be displayed. Icon menus are sometimes known as "toolbars."

Example: Click on the icon showing the color selection palette. The color selection window comes up. This shows that you are running the COLOR command. You can choose a new drawing color by clicking on the desired color. This color, when chosen, will appear in the Status Bar area as the current color.

The list of icons varies, depending on which commands are currently available. When you start a command, a different set of icons will appear. These represent features, such as Zoom or Select All, that can be used while you are in the middle of a command. These icons will vary, depending on which options are available with the command you are currently running.

DRAWING AREA

The drawing area is where your drawing is displayed. You can think of the drawing area as the viewfinder on a camera; it shows a limited section of an area that stretches out in all directions. You can zoom back, zoom in, or pan to different areas of the drawing using the arrow and page up/page down keys.

Everything you draw will be contained in the drawing area. You can also choose to display a grid, to help in positioning objects.

COMMAND AREA (PROMPT LINE)

The prompt line is where the computer gives you messages and asks you questions. At any given time, you will see the latest three messages. The one on the bottom line is the most recent. **It is very important to read these prompts.** If the computer does something that completely baffles you, it's usually because the command you think you're running is different than the command the program thinks you're running. Reading the prompt line and the Status Bar will let you know what the program is trying to do.

Most inputs you type into the computer will also appear on the prompt line. (However, for certain commands your inputs will go into a dialog box instead.)

When the computer is ready for you to choose a new command – a drawing tool, editing function, etc. – it will display the command prompt, which looks like this:

Command :

If you don't see this, it means you are still in the middle of another command.

When you select a command, the first prompt you get will be the name of the command you are running. Look for this if you get confused.

LOOKING AROUND: PAN AND ZOOM

As mentioned above, there are several tools you can use to view different parts of your drawing. ZOOM changes the scale of the drawing, appearing to move you closer or further away. PAN moves you up, down, right, or left.

Remember that your drawing doesn't change when you zoom or pan; only your view of it changes. Think of the drawing area of the screen as the viewfinder on a camera that moves around to get different views of the drawing.

All the various ZOOM and PAN commands can be selected either with icons or from the "Zoom" submenu on the **View** menu.

Special Zoom and Pan Keys

PatternMaker provides some special short cut keys to make it easier to activate the most commonly-used ZOOM and PAN modes:

<PgUp>	Zoom Out
<PgDown>	Zoom In
<Home>	Zoom to Mouse
<End>	Zoom All
←↑↓→	Pan

All of these commands are described in detail in Chapter 12: The VIEW Menu.

VIEWING THE GRID AND POINTS

The grid can help you position points and objects, and gives you an idea of an object's size. You can turn the grid off and on with the <F4> shortcut key.

Every object you draw is made up of points. A point is placed automatically where a line segment begins, ends, changes direction, or curves. In order to move points or perform other actions, you often need to see exactly where the points are in your drawing, since they do not necessarily fall on a line. You can turn the points off and on with the <F5> shortcut key.

EXAMPLE: PAN/ZOOM, VIEWING GRID AND POINTS

Load the sample file "G0641.PAT". [This is a pattern for a ladies' jacket.](#) Try the following once you have the drawing open:

1. View the entire drawing by pressing the "End" key (or selecting "Zoom All" from the "View" menu). This zooms in or out so that the whole drawing is visible and the drawing fills the entire available screen area. This is especially handy if you get "lost" in your drawing and need to reorient yourself.

2. Turn the Grid on and off by pressing the <F4> key, or select “Grid” from the **View** menu.
3. Pan. Use the arrow keys to pan the drawing left/right/up/down.
4. Zoom In/Out by pressing the “Page Down” or “Page Up” keys on the keyboard. Notice that if you zoom very far out, the grid gets too small to display, even if it is turned on.
5. Zoom in on the cursor by pressing the <F3> key on the keyboard.
6. Zoom in on a specific area by selecting the “Zoom” icon. Then select two points in the drawing area. These points define a rectangular “window.” PatternMaker zooms in so that this window fills the entire drawing area.
7. Zoom to the last view position with “Zoom Previous” in the “View” menu. Note that this option can’t be chosen with the hot keys.
8. Turn the Points on and off by pressing the <F5> key, or select “Points” from the **View** menu.

USING A MOUSE OR DIGITIZER

PatternMaker is designed to be used with either a mouse or a digitizing tablet. The left button of the mouse is used to select commands and choose objects or points. The right button of the mouse is used mainly to cancel commands. It is also used to indicate completion of a selection set (see the section on selecting objects for more information.)

Using a Mouse

Most of the time, you will use a mouse to give PatternMaker commands. You can activate a command by typing the command name, but this is usually less convenient. There are a few things you can’t do without typing, such as adding words to your pattern, but most things can be done either by typing or using the mouse.

If you use a digitizing tablet instead of a mouse, the pointing device you use may be a mouse, puck, or pen, depending on the digitizer.

You can use either a two-button or three-button mouse, or a digitizer pointing device, with PatternMaker. If you have a three-button mouse, ignore the middle button. If you have a digitizer, your mouse can be in either mouse mode or absolute mode. Absolute mode is described under “digitizing pads” below.

The basic rules of mouse operation are:

- If you’re drawing something, use the left button to enter a point.
- If you aren’t drawing something, use the left button to choose a command or answer a question.
- Use the right button to stop whatever you’re doing.
- The right mouse button and the <Escape>, or <ESC>, key are interchangeable.
- Don’t “click and drag” like you do with many other computer applications. Just click the button and let it up.
- The normal mouse cursor looks like an arrow. An hourglass-shaped cursor means you should wait for the computer. A plus sign means you are using a digitizer in absolute mode (see below).

- If the mouse cursor is outside the PatternMaker window on your computer screen, your inputs won't be read by PatternMaker. Instead, they will be read by whatever Windows program controls the window the mouse is in.

Whenever this manual tells you to “click” the mouse on something, this means to put the mouse cursor on that thing, push the button down (the left button unless otherwise specified), and let it up again. “Double click” means to click the mouse twice on the same thing, fast.

The Mouse Coordinates box in the menu bar will tell you the current position of the mouse. These are standard X-Y coordinates. The first number is the X, or horizontal, position and the second number is the Y, or vertical, position. (See Using Coordinates, later in this chapter, for full details.) The program default is for these coordinates to be measured in inches; however, you can choose to work in centimeters instead, by selecting the UNITS command from the **Settings** menu. The origin (the "0" point where the X and Y numbers start counting from) may be anywhere in the drawing area, or off the screen, depending on what you have done with the ZOOM and PAN commands. The amount of screen and mouse distance that equals an inch changes if you zoom in or out. The coordinates will change whenever you run one of the ZOOM or PAN commands.

Using a Digitizer

Some people will be using a digitizing pad with PatternMaker. A digitizing pad is like a drawing table with its own mouse. The pad senses where the mouse is electronically. This makes it much more accurate than an ordinary mouse. It also means that the digitizer mouse won't work unless it's on the digitizer pad. Using a digitizer is the best way to copy drawings from paper into the computer. PatternMaker is designed to work best with a four-button digitizer mouse.

The digitizer can operate in two modes: mouse mode and absolute mode.

- In mouse mode, the digitizer works exactly like an ordinary mouse. If you see the arrow cursor on the screen, you are in mouse mode.
- In absolute mode, the mouse cursor changes from an arrow or hourglass to a small plus sign. You cannot choose menu items or command icons when you are in absolute (digitizer) mode.

Absolute mode means that a point on the digitizer always corresponds to the same coordinates, no matter what's showing on the screen. For example, you can zoom out so far that your whole pattern is a tiny dot in the center of the screen, but if you move the mouse ten inches, the coordinates will change by ten inches.

By default, the coordinates are measured from the lower left corner of the digitizing area and one inch on the digitizer equals one inch in the drawing.

See Chapter 19: for more about digitizers.

SELECTING A COMMAND

There are four ways to select a command with PatternMaker: icons, menus, typed commands, and hot keys. Some commands are accessible in more than one way. Use whichever is convenient.

Chapter 2: The PatternMaker Environment

When you have selected a command, the command's name appears in green in the Status Bar. When you finish the command, its name turns purple.

Icons

The icons are provided to make it easy and quick for you to use PatternMaker with a mouse. If you learn how to use the icons, they will make your work faster and easier. However, you never have to use the icons – everything that you can do with icons can also be done with either a menu choice or a typed input. Use whichever is more convenient for you.

You can activate a command by clicking an icon with the left mouse button. Clicking the right mouse button on an icon will give you the Help information for that icon. Remember that the color, pattern, line style, layer and digitizer mode areas in the Status Bar are also icons.

Example: Start the program. Click on the icon with the diagonal line in it. This is the LINE command (see icon list below). Then click on two points in the drawing area. These will be the ends of your line.

If you have problems: Remember that you can only do one command at a time. If you click LINE the computer will ask you where you want to start your line. If you respond by clicking on the “color” icon the computer will be confused.

Note that you will only get “help” if you click the right button. Also, don't “drag” to draw the line. (See “Using the mouse” above.)

ICON SUBMENUS

When you start a command, a different set of icons will appear in the icon area. These icons represent options that you can select while doing a command. The icons that appear will vary, depending on the command you selected, and on what choices are available.

Example: When you first start PatternMaker, there is nothing in your drawing, and the MOVE icon doesn't appear. This is because there is nothing to move. After you draw an object, the MOVE icon and several others appear.

Example: When you select the MOVE command, a different set of icons appears. These are the Selection icons (see below). These are options you can use while selecting objects to move.

Remember that not all commands are represented by icons – if you don't see an icon for a command, you may still be able to select it from a drop-down menu.

Menus

You can select the drop-down menus at the top of the screen with the mouse. When the menu appears, click the mouse on the command you want. This works like any other Windows application.

A menu item with an arrow next to it (➤) leads to a submenu with more choices.

If a menu item is not available, it will be grayed-out and you cannot select it. For instance, you can't select the MOVE command if there aren't any objects for you to move.

Example: Click the left button on "Draw" in the menu bar at the top of the screen. A menu of drawing commands comes up. Choose "LINE." Then click on two points in the drawing area. This will draw a line.

SELECTING MENUS FROM THE KEYBOARD:

Select a pull-down menu by holding down the <ALT> key and typing the underlined letter in the menu's name. When the menu appears, use the up and down arrow keys to highlight the menu item and press the <ENTER> key. Or type the key letter of the item you want. The key letter for each menu item is underlined. (Most Windows applications work the same way.)

*Example: Press <ALT>+F to select the **F**ile menu*

Typed Commands

You can select any command by simply typing the name of the command. The letters you have typed will appear on the **prompt line area** at the bottom of the drawing area. Press the <ENTER> (Return) key and the command will start. The chapters on Menu Commands give full lists of the commands available for PatternMaker.

Sometimes the proper name of a command is slightly different than the name listed in the menu. To find the proper name of a command, look for the command's name in the menu bar after you select it.

Hot Keys

The function keys <F1> through <F10> and various other special keys on your keyboard can be used to run certain commands. These are called the "hot keys." The hot key commands can be selected at any time, even if you are in the middle of another command. For instance, while doing the MOVE command, you may zoom in to see a very small object you want to select, then zoom out until the destination comes into view.

Your PatternMaker program comes with a plastic-coated strip that you can lay on top of your keyboard to help you remember the hot key commands. The commands listed in color are selected by using more than one key. For example, to select Snap to Offset, hold down the <CTRL> key while pressing the <F8> key.

You will find that using the hot keys is essential to using PatternMaker. Tutorial 2 gives you an introduction to how they work.

(Most of the hot key commands can also be selected with icons. These icons appear after you select a command.)

Here are the functions of the hot keys:

	Function Key	<CTRL>+Function Key
<F1>	Zoom out (makes everything appear smaller)	Snap off
<F2>	Zoom in on the center of the drawing area (makes everything appear bigger)	Snap to grid. Also shows the grid, if it's turned off.
<F3>	Zoom in on the mouse. To examine a detail of your drawing, put the mouse on it and press <F3> a few times.	Snap to end point
<F4>	Grid on/off. Shows or hides the grid points.	Snap to nearest
<F5>	Points on/off. Shows or hides the vertices of all objects.	Snap to ortho
<F6>	Select snap. A menu will appear, listing all available snap modes.	Snap to mid point
<F7>	Arrows. Shows or hides the grading arrows. This function toggles between three options: no arrows, arrows only, and arrows and their names. See Chapter 12: The VIEW Menu.	Snap to intersection
<F8>	Absolute mode/mouse mode. Switches digitizer mouse modes. This only applies if you are using a digitizer.	Snap to offset
<F9>	Pan to mouse. The view is moved so the current mouse location is at the center of the drawing area.	Snap to distance from end point

Other hot keys:	
<Pg Up>	Zoom out
<Pg Down>	Zoom in
<Home>	Zoom in on mouse
<End>	Zoom All. Shows all objects
<←, →, ↑, ↓>	Pan left, right, up, down

All of the above functions can interrupt other commands.

REPEATING A COMMAND

If you click the mouse on the screen again after you've finished a command, the last editing or drawing command you performed will be repeated. This allows you to draw or edit many objects without having to select the same command icon over and over. If you aren't sure which command will be repeated, the command's name is displayed in purple in the black part of the menu bar.

Be careful about clicking the mouse in the drawing area indiscriminately – it's easy to repeat a command without meaning to. Remember: if you don't understand what the computer's trying to do, read the prompt line.

CANCELING A COMMAND

If you are in the middle of a command and you realize you don't want to do that command, you can cancel by pressing the <ESC> key or clicking the right mouse button. If you were in the middle of an intermediate step, you may have to press <ESC> more than once. You will know when you're out of the command entirely when the command name in the Status Bar returns to purple and the "Command:" prompt appears.

Example: Here is what the prompts will say if you select the LINE command and then cancel:

Command: LINE

Enter a point, <ESC> to cancel: *Cancel*

Command:

ENTERING POINTS

You need to enter points any time you draw or edit anything with PatternMaker, and also when you are selecting objects or vertices. PatternMaker has great flexibility in how you can enter these points. The following procedures are for any time you need to input a point, whether you are drawing an object or doing a function such as MOVE or ROTATE. There are three ways to enter points: mouse, digitizer, and typed coordinates.

Mouse

You can click in the drawing area to enter a point. Use the left button. This is the simplest way to enter data, but may not be as accurate as you want.

Snap Modes

Snap are a way to make mouse inputs more precise. When you are "in" a Snap mode and you enter a point with the mouse, the "snap point" closest to the mouse location is entered, rather than where the mouse cursor is actually pointing. For instance, in Snap to Grid mode, the snap point is the grid point closest to the mouse. This makes it possible to enter a grid point with 100% accuracy.

When you move the mouse, a yellow "X" will appear at the closest snap point. If no "X" appears, there is no snap point close enough to the mouse and the mouse input will work in the usual way.

The Snap Modes are:

<i>Snap Mode</i>	<i>Snap Points:</i>
Snap off	There are no snap points
Snap to grid	The nearest grid point
Snap to end point	The nearest vertex of an object
Snap to nearest	The nearest point on an object, whether or not it's a vertex
Snap to ortho	The nearest point on a horizontal or vertical line from the last point you entered
Snap to mid point	The nearest midpoint between two vertices of an object
Snap to intersect	The nearest intersection of two lines or objects
Snap to offset	A point offset from two lines of an object. When you select Snap to offset, you will be asked for two distances; these will be the offsets from the two lines. This is for making seam allowances and facings from existing pattern pieces. See Tutorial 11.
Snap to distance from end point	A point a specified distance from an existing vertex. The distance is measured along the edge of the object, rather than in a straight line. Use this mode to place a point a certain distance from the end of a curved line.

You will often need to change snap modes in the middle of another command. Therefore, all of the snap modes can be selected with hot keys (see above) and icons.

Example: Use the RECT command to draw a rectangle. Now, suppose you want to align this rectangle with the grid. Select the MOVE command and then select the rectangle. When the prompt line asks you for a base point, select Snap to End Point (<CTRL>+<F3>) and then select the lower left corner of the rectangle. When it asks you for a destination, select Snap to Grid (<CTRL>+<F2>) and then select a grid point. The corner of the rectangle is now placed exactly on the grid.

Hint: If you aren't using a Snap mode, select Snap Off. Being in a snap mode when you don't need it may slow down the computer, or make you select a snap point you didn't want.

Digitizer

You can click anywhere on the digitizer to enter a point. See the discussions of digitizers above and in Chapter 19: .

Using Typed Coordinates

You can type in the coordinates of the point you want to enter. For instance, if you wanted to start a line at the origin (0,0), this would be the best way to do it. What you type will appear on the prompt line; look at it to make sure you haven't made a mistake before you press <ENTER>. There are four ways of entering coordinates from the keyboard:

ABSOLUTE MODE

Type in the x and y coordinates of your point, separated by a comma. Remember, the first number is the x, or horizontal, coordinate and the second number is the y, or vertical, coordinate.

Example: Choose the RECT command and type:

10, 9.5 <ENTER>

to enter a point 10 inches to the right of the origin and 9.5 inches above it. The space between the comma and the Y coordinate is optional.

RELATIVE MODE

Type an @ symbol, followed by the x and y coordinates. Instead of measuring from the origin, PatternMaker will measure from the last point you entered.

Example: Continue the RECT command started in the example above by typing:

@1,1 <ENTER>

This makes a rectangle whose opposite corner is 1 inch to the right of and 1 inch above the first corner, no matter where the first corner was.

POLAR COORDINATES

Type two numbers, separated by an angle symbol < instead of a comma. The first number is the distance from the origin and the second number is the angle in degrees. (Angles are measured from a base line that starts at the origin and goes right. Positive angles go up and negative angles go down.)

Example: Type

3<30 <ENTER>

to enter a point 3 inches from the origin, at a 30 degree (upward) angle.

RELATIVE POLAR COORDINATES

This is a combination of method 2 and method 3 above. The point will be measured in polar coordinates from the previous point.

Example: Type

@3<-30 <ENTER>

to enter a point 3 inches from the previous point, at a 30 degree downward angle.

Tutorial 3 gives practice in the various kinds of typed point inputs.

CHAPTER 3: GETTING STARTED

OVERVIEW OF FILES

When your computer runs PatternMaker (or any other program), it keeps its data in random-access memory, or RAM. Anything in RAM goes away when you exit the program or turn off your computer. To save your work, you need to put the data on a disk, either a floppy disk or the hard disk built into your computer.

When a computer saves data on a disk drive, it organizes the data into files. Every PatternMaker drawing that you save is kept in a file. If you start a new drawing, it won't be a file until the first time you save it. If you change a drawing, and then save it again, the file will be overwritten with the new information. Be careful not to wipe out a file you need! If you want to save both the old and new versions of a drawing, use the SAVE AS command to save it in a different file.

"Folders" are lists of files. When you install PatternMaker, all the files related to PatternMaker are kept in the same folder. As you create more and more drawing files, you will eventually want to put them in different folders to keep them organized. The system you use is up to you.

Files and folders are used by all Windows computers. If you aren't already familiar with files and folders, any basic Windows manual will explain them for you.

Chapter 8 gives detailed instructions for all **File** menu commands. Refer also to Tutorial 2.

OPENING A FILE

Selecting a file with PatternMaker is just like selecting a file in any other Windows program. If you are familiar with this procedure, you can probably skip this section. To open a file, click the Open icon, or select "Open" from the **File** menu.

The Open File dialog box will come up:

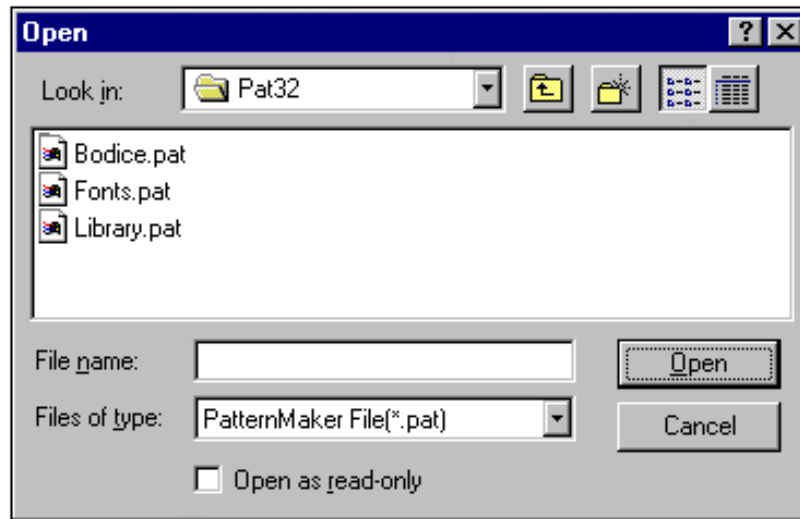


Figure 1: The Open File dialog box

How the "Open File" dialog box controls work

The file list shows files in the current folder. By default, all files with the filename extension “.pat” are shown. You can select a file by double-clicking on it with the left mouse button, or by clicking on it once and selecting “OK” with the mouse. You can also type the name of a file in the typing area.

To search in a different folder, double-click on the folder name in the “Folders” list. When you find the file you want, select it as above.

To change disk drives, click the down arrow in the “Drives” area of the box and then select a drive.

To import a file from a different file format, click on the arrow under “List Files of Type:” and select a format from the list that appears. This will search for files with the specified extension. For instance, if you select “P’Maker DOS File,” filenames ending in “.drs” will be listed.

When you have made your choice, select “OK” with the mouse or press the <ENTER> key. If you have selected a folder or drive, a new list of available files will come up. If you selected a file, then it will be loaded and the drawing will be displayed on screen.

TYPES OF FILES

Besides the description above of the general .PAT format files, there are other types of files used by PatternMaker that you might encounter.

Normally, when you open a type of file, the list that appears is filtered, to show you only the files that are of the type you are opening. (For example, when you are opening an ordinary drawing, you do not see the files that contain grading tables, or the font files.) However, if you look at the PatternMaker folder with Windows Explorer, you will see a variety of file formats. Here’s a list of the file types used by PatternMaker:

.PAT

This is the standard PatternMaker format. This file type is discussed above.

.DXF

This is sometimes called the AutoCAD™ format. It is used by many popular CAD and graphics programs.

.MAC

This file extension is used for the PatternMaker macros. Macros are discussed in Chapter 5.

.CHR

These are font files. PatternMaker does not use your regular Windows TrueType fonts, since that font format cannot be used with many pen plotters. Instead, the program comes with its own set of fonts which will work with any printing device. A list of the PatternMaker fonts is on page 92.

Library Files

PatternMaker also lets you use a drawing file (.PAT) as a library of items that you can put into your patterns. You can load single objects, groups of objects, or symbols from a library file. Use a library whenever you want to insert many copies of the same item in many different drawings. Any drawing file can also be used as a library file. The library commands are found in the **Symbols** menu and are described in Chapter 4: Layers, Symbols and Libraries.

If you have the Expert or Marker versions, you can create your own libraries.

OVERVIEW OF OBJECTS

How do you create a pattern with PatternMaker? You can open an existing file containing a drawing, or you can run a macro to make a pattern for you. But the way to create your own patterns, or to add to an existing one, is to use PatternMaker's many drawing commands to make new objects. These commands are designed to allow you to do the same things you would do in creating a pattern on paper: to "trace" an existing pattern with a digitizing pad, to measure distances and draft shapes to certain measurements, and so forth.

Your PatternMaker drawing is made up of objects. For example, a bodice piece outline is an object, the arrow showing the grain line is an object, and the words "Front Bodice" are yet another object. PatternMaker handles objects slightly differently than most CAD programs, but you should find them easy to understand.

Each object is made of one or more points. This manual will usually refer to a point as a **vertex**. For example, if the object is a triangle, it will have three vertices – one at each corner. Objects have colors and other attributes, too, depending on the type of object. Many of these attributes can be changed with the **CHANGE** command or the various commands in the **Settings** menu (see Chapter 14: The SETTINGS Menu).

Each vertex may or may not have a grading arrow assigned to it. Grading and grading arrows are explained in Chapter 15: Grading Overview.

Hint: The current layer must be turned ON for you to draw anything. If all of the Draw commands are inactive, use the Layer command to make sure the current layer is turned on.

TYPES OF OBJECTS

PatternMaker has four types of objects:

Text

A text object is words, numbers, etc. that you can use as a label in your drawing. A text object has one vertex, which gives the location of the lower left corner of the text. You can print text in any size, at any orientation or angle, and in several fonts (styles).

Text labels can be very useful in printed patterns, to identify pieces, pattern, material requirements, and the author/designer.

PatternMaker does not use the standard Windows TrueType fonts. Instead, it uses “stroked” fonts that are designed to be used with pen plotters (though they will work with other printers too). A stroked font is scaleable which means you can set the size of the font (the height) to anything you want.

Hint: You can use many different fonts with PatternMaker, but you will want to do most of your labeling in SIMP.CHR, which is the default font. Using many fonts takes up more memory and causes PatternMaker to run and print slower.

When you draw a text item, the computer will ask for a location, size, rotation angle and for the text to be printed. The size is the height in inches. The angle is measured in degrees, going counterclockwise. For instance, 0 degrees is horizontal, and 90 degrees is vertical, reading upwards. (See the TEXT command, in Chapter 8: The FILE Menu)

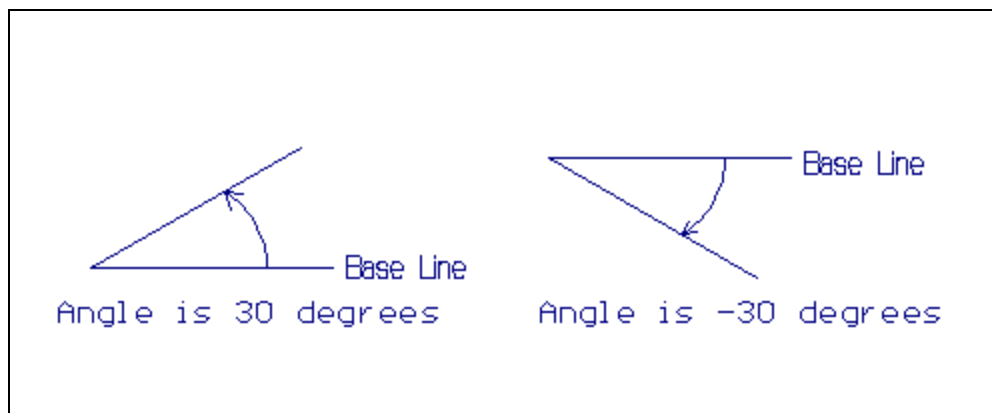


Figure 2: Inserting text at an angle

Hint: If you want to have multiple lines of text, make several text objects. One of the easiest ways to line them up is to turn on Snap to Grid and then line up the text on grid points. For example, if you are drawing text that is 1/4" tall, set the grid to 1/2", or .5, which will then be the spacing for your text items.

Dimension

A dimension, or “dim,” object is an engineering-style dimension line, showing the distance between two points. This consists of lines and arrows indicating the two points at which the measurement is taken, and the distance between the points. A dimension object has three vertices: the two points being dimensioned, and one to indicate where to print the numbers. If you move one end of a dimension line, the distance will automatically update. (See the DIM command in Chapter 9: The DRAW Menu)

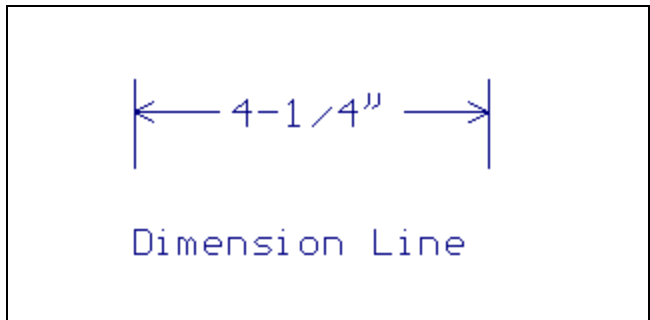


Figure 3: A Dimension object is used to measure distances

Symbol insertion

A symbol insertion looks like a collection of other types of objects, but it is really a copy of objects that are stored elsewhere in PatternMaker’s memory. Therefore, you can’t move or edit the objects in an insertion in the usual way. A symbol insertion has one vertex: the insertion point.

Note: Usually the insertion point is close to where the insertion is drawn, but it doesn’t have to be. If you can’t tell where the insertion point is, use <F5> to show it (see the hot key list in Chapter 2: The PatternMaker Environment).

Insertions can be rotated and made larger or smaller, but otherwise an insertion can’t be changed except by changing the symbol that it is based on. For a full explanation of symbols and insertions, read Chapter 4: Layers, Symbols and Libraries.

Polygon

Polygons are the basic building blocks of your drawing. Everything that isn’t a text, dim, or insertion object is a polygon. For example, circles, rectangles, and lines are all polygons. A polygon can have any number of vertices. The vertices are connected with straight lines or arcs to form a shape. To change a polygon, you can add and remove points, or change its shape by moving some points.

A polygon can be open or closed. An open polygon is a (possibly long and crooked) line. A closed polygon is a shape with an inside and an outside. When you draw a pattern, the pieces you will actually cut out will be closed polygons. Other items, such as stitching lines, may be open polygons.

DRAWING AN OBJECT

The **Draw** menu contains the names of nine different objects that you can add to your drawing. Some, such as Line, Circle, and Offset, are actually polygons themselves, but they have separate command names to make them easier to access and create.

The Polygon is the most common type of object that you will use. This is the basic order of events in drawing a polygon:

- Select the POLY command
- Enter some points
- Choose options from the Point types menu
- Enter more points
- Choose “Done” from the Point types menu

See the POLY command in Chapter 9: The DRAW Menu for detailed instructions on drawing polygons.

SELECTING AND EDITING OBJECTS

HOW EDITING WORKS (OBJECTS)

The Edit commands all follow a similar routine: first select a command, then give the computer the information it needs to execute the command. For instance, for the MOVE command, here’s what you do:

1. Select the MOVE command.
2. Tell it *what* to move.
3. Tell it *where* to move.

During steps 2 and 3, you are “in” the MOVE command. You can’t give any other commands, except the hot key or icon commands, until you are out of the MOVE command. When you start another command, you will need to select a new set of objects.

Note on Commands and Objects:

In PatternMaker you select commands first and then the objects they apply to. Some programs work like this, some are the other way around. AutoCAD™, the drafting program, has you select commands and then objects. Adobe Illustrator™ has you select objects and then commands.

SELECTING OBJECTS

This is the second step in any edit function.

Some editing commands only work on one object at a time. Others, such as the CUT and JOIN commands, require you to select two objects, one at a time. The rest of the commands can work on any number of objects. Click the left mouse button on each object you want to select. If you have selected an

object, it will be highlighted, and the program will echo a response to the prompt line, indicating the objects selected.

Example: If you select a text object, a rectangle will be drawn around the text, and the prompt line will say:

Text Selected

To Stop Selecting Objects:

When you have selected the object or objects you want, click the right mouse button or press <ESC>.

Other selection Tips:

- For polygon objects, click anywhere on the edge (not the inside) of the object.
- For text objects, click on the lower left corner.
- For symbol insertions, click on the insertion point.
- For dimension objects, click on either endpoint.
- Clicking on a vertex always selects the object.
- Click the right button or press the <ESC> key when you are done selecting objects.

If it's hard to tell what you're selecting, use the Show Vertices command (<F5>) to show the vertices.

SPECIAL SELECTION OPTIONS

There are special options that you can use while selecting objects. These only apply to those functions that apply to more than one object, such as MOVE.

Un-selecting objects

If you have accidentally selected an object that you don't want, click on it again and PatternMaker will un-select it and it will be un-highlighted.

All objects

Type "a" or click on the "Select All" icon. Every object in the drawing will be selected unless its layer is turned off (see Chapter 4: Layers, Symbols and Libraries).

Window selection

To select all objects in a given area, type "w" or click the "Window" icon. PatternMaker will prompt you to enter a rectangle: the selection window. Every object that contains a point inside the selection window is selected. Window selection never un-selects objects. Note that if the window overlaps an object, but doesn't contain one of the object's vertices, the object won't be selected.

After doing any of the special options, you can continue selecting objects by clicking on them, or select more special options.

Note on typed input: You can use typed coordinates instead of the mouse to select objects (See “Using Typed Coordinates,” page 16). You can also use typed coordinates to define the rectangle for Window selection.

COMMANDS FOR ONE OR TWO OBJECTS

Certain commands, such as CHANGE TEXT, require a specific number or type of objects. The rules for selecting these are slightly different. You can’t use the All objects or Window selection options. If you select one object, then select another, the first object will be unselected. Press <ESC> when you have selected the object you want. For a command, such as CUT, that requires two objects, you do this twice, so the order of events is: Select, <ESC>, Select, <ESC>. Read the messages in the prompt window for guidance when you do one of these commands.

There are special situations where it is hard to select an object:

- **Objects not in view:** The easiest solution here is to select “Zoom All” from the menu. You can also use the **Function** keys or icons to zoom and pan to where the object is (See Zoom and Pan functions).
- **Layer Off:** If an object isn’t showing because it’s in a layer that’s turned off, there is no way to select it. Use the Layers command to turn on all the layers you need before selecting a command. For more information about how to turn layers on and off, see the section on **Layers** (Chapter 4: Layers, Symbols and Libraries).

Note on mistakes: If something goes wrong, such as the wrong objects being selected, you can abort your command by pressing <ESC> one or more times. If you complete a command and realize it wasn’t what you wanted, you can undo the change with the UNDO command.

For more examples of how to use the Edit functions, see Tutorial 4.

Base Point and Destination

Many commands will ask you to specify a “base point” and a “destination.” The base point is like a handle that you use to carry the object(s). The destination is, of course, where you want the object(s) to end up. The base point and the destination are the reference points used for performing the command. For example, for the MOVE command, the distance the selected objects will be moved is equal to the distance between the base point and the destination point.

Note: It usually doesn’t matter what spot you pick for the base point. Just click wherever it’s convenient.

Using typed coordinates is especially useful for specifying the destination point. Sometimes it doesn’t matter how far you move something – you just want it out of your way. But often you need to move an object a certain distance. Use Relative Coordinates (see page 17) to do this accurately.

GROUPS OF OBJECTS

When objects are grouped together, you select every object in the group by clicking on any object in the group. This way, objects that belong together stay together. For instance, a single piece of your pattern may consist of the outline of the piece, some dotted lines showing the stitching lines, another object showing the grain line, some text describing the piece, and other objects. Group objects together if you want them to stay together through commands such as MOVE or ROTATE, or ARRANGE MARKER.

You can save a group of objects in a library file and load them into other drawings. See “Libraries” in Chapter 4: Layers, Symbols and Libraries.

Use the GROUP command to create groups. Use the UNGROUP command to break groups up.

EXAMPLE: THE MOVE COMMAND

1. Draw a line using the LINE command in the **Draw** menu, or using the “Line” icon in the icon area. Try to make the drawing look something like Figure 4.
2. Now select MOVE from the Edit menu. The bottom line of the prompt area will say: Select object, ? for help, <ESC> = done:

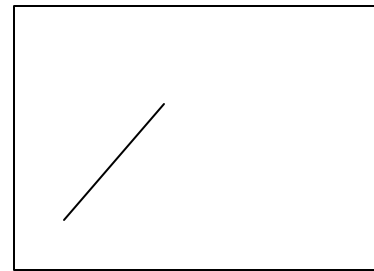


Figure 4: Drawing a line

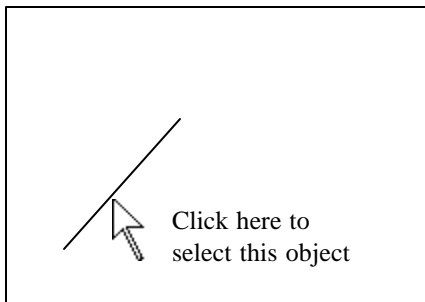


Figure 5: Selecting an object to move

3. Answer this question by clicking on the line. (See Figure 5) It should highlight. The same prompt will be repeated, giving you a chance to select more than one object. This time, since you are done selecting objects, respond by clicking the right button of the mouse
4. Now the computer will respond with a new question: Base point?: It is often convenient to carry a line by the midpoint, so click in the middle of the line you are moving.

5. After you click, the prompt line will say: Destination: Move the mouse around and you will see the line move.

6. Move the line around a bit. Notice the cyan (bluish) line that shows you how far the line has moved. See Figure 6.

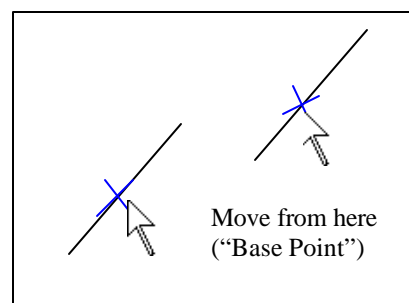


Figure 6: Moving a line

7. Click the left button again to place the line

in a new position. The final result will look like Figure 7.

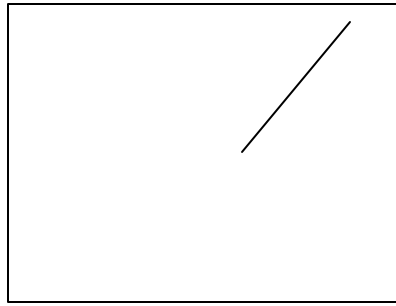


Figure 7: Final position of the line

OVERVIEW OF POINTS

TYPES OF POINTS

Whether a segment of a polygon is a straight line or a curve depends on the type of the point at the start of the segment. There are four types of points:

- **Line (L)**
Ordinary points are connected by straight lines. In other words, a Line point is a corner of a polygon.
- **Arc start (X)**
The beginning of an Xarc (see below).
- **Arc corner (C)**
This is the corner point, or control point, of an Xarc (see below). This point controls the shape and amount of curvature of the Xarc. If you use the MOVE VERTEX command to move a corner point, you will see how the arc changes shape.

Since the corner point doesn't lie on the object, it will sometimes be difficult to tell exactly where the corner point is. Use the <F5> Hot Key to display the vertices if this happens.
- **Open (O)**
An open point is the last point of an open polygon. Only the last point of a polygon can be of the Open type. This is how PatternMaker tells the difference between an open and a closed polygon.

Xarcs

Xarcs are the way PatternMaker draws curves. While a line segment is determined by two points, an Xarc is determined by three points: the start point (type X), the corner point (type C), and the end point. The end point can be the start of a line, the start of another Xarc, or the end of the object.

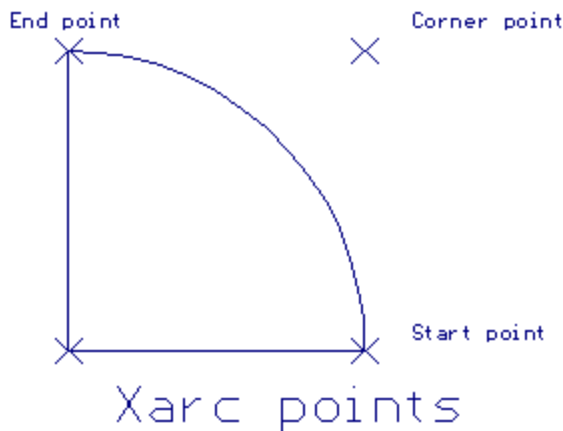


Figure 8: Types of points

The corner point determines the shape of an Xarc. If you draw an imaginary line from the corner point to one of the end points of the Xarc, the line will be tangent to (blend smoothly into) the end of the Xarc. This means that:

- If the corner point, the end point, and the next point after that all lie on a straight line, the Xarc will merge smoothly into the next segment of the object. (See curve A-1-2 in Figure 9 below.) This is true whether the next segment is a straight line or an Xarc. A sleeve cap, for example, will consist of several curves that need to merge smoothly.
- If the corner point, the end point, and the next point of the object form a right angle, then you will get a square corner where the arc meets the next segment of the object. (See curve A-B-C in Figure 9 below.) This

is the common procedure for curved lines such as arm and neck holes.

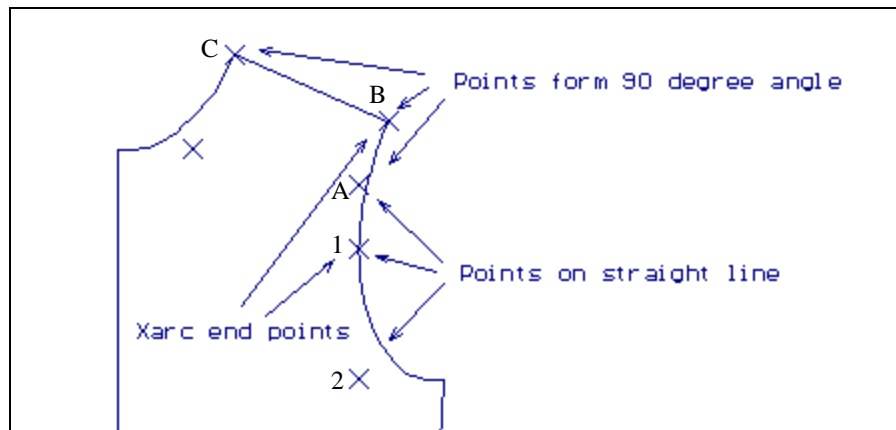


Figure 9: Placing points to form curves

The two facts above are important to keep in mind when you are adjusting the shapes of curves in your drawing.

Hint: If you can't get an Xarc to take the exact shape of the curve you want, such as for an arm hole, draw the curve as two or three Xarcs together.

SELECTING AND EDITING POINTS

HOW EDITING WORKS (POINTS)

The Point Edit commands are used on individual points of objects, rather than whole objects at a time. You can move, add, delete etc. The vertices don't all need to belong to the same object, and the rules are similar to the rules for selecting objects (see Selecting Objects). The general order of events is:

1. Select a command (such as MOVE VERTEX).
2. Select the vertex or vertices to apply the command to.
3. Give PatternMaker any other information (for MOVE VERTEX, this would be first the point to move from, then the point to move to).

SELECTING VERTICES

Selecting vertices works just like selecting objects, except that you click on specific points, and not just anywhere on an object. A point can be a vertex (curve or corner point) of a polygon object or an insertion point of a Text, Symbol or Dimension object. When you select a point, a small red "X" will be drawn to highlight the point. (If you have the points visible (<F5>) the color will change from blue or green to red if the point is selected.)

There are several ways to select a vertex. (Remember, you have to start a command like MOVE VERTEX or DELETE VERTEX before these will work.)

- Click the left mouse button on each point you want to select. It will be highlighted, and the program will echo a response to the prompt line, indicating the points selected. You can select as many points as you want.
- For polygon objects, click on any corner or Xarc corner point. Note that the Xarc corner points are not actually on the polygon; they are near it. If you want to locate a corner point, you may have to turn on "show vertices" (see Chapter 2: The PatternMaker Environment).
- For text objects, click on the lower left corner to select the insertion point. If you can't find it, try "show vertices" (<F5>).
- For block insertions, click on the insertion point.
- For dimension objects, click on either endpoint or the dimension label insertion point.

To Stop Selecting Points:

Click the right button or press the <ESC> key when you are done selecting points.

SPECIAL SELECTION OPTIONS

Special options that you can use while selecting points are:

Un-selecting points

If you have selected a point that you don't want to select, click on it again and PatternMaker will un-select that point.

Window selection

To select all points in a given area, type “w” or click the Window icon. PatternMaker will prompt you to enter a rectangle (the selection window). Enter two opposite corners to define the window. Every vertex inside the selection window is then selected. Window selection never un-selects points.

Note on typed input: You can use typed coordinates instead of the mouse to select points (See “Entering Points” in Chapter 2: The PatternMaker Environment). You can also use them to select the rectangle for Window selection.

Selecting segments

For some functions, PatternMaker doesn’t just want you to select a point, but the line segment or arc connecting two points. Just put the mouse on the appropriate segment and click.

SPECIAL SITUATIONS WHERE IT IS HARD TO SELECT A POINT

Often if several points are close together you will have difficulty selecting the correct point. There are several ways to deal with this.

- Zoom in (<F3>) to get a better view.
- Use the SHOW VERTICES command (<F5>) to show where the vertices are. Note that for Symbols and Text there is only one point (the insertion point) in an object. SHOW VERTICES (<F5>) will confirm this for you.
- Turn on Snap To Endpoint and use the snap cursor to show you which points will be selected
- The ID POINT function can also be very useful in cases where you are having trouble figuring out why a point is not getting selected. Sometimes an object will have several points in the same position, or you may find that two different objects have points in the same place. The ID POINT command will help you sort this out.
- If points from two objects are placed at the same location, the X marks cancel each other out, and will not be visible. Put one or more of the objects on a different layer and turn the layer off. (See Chapter 4: Layers, Symbols and Libraries). This will get them out of the view and make your work easier.

Base Point and Destination

Like the commands that affect objects, many of the Point commands will ask you to specify a “base point.” The base point is like a handle that you use to carry the point(s). The destination is, of course, where you want the point (s) to end up. The base point and the destination are the reference points used for performing the command. For example, for the MOVE VERTEX command, the distance the selected points will be moved is equal to the distance between the base point and the destination point.

Note: It usually doesn’t matter what spot you pick for the base point. Just click wherever it’s convenient.

Using typed coordinates is especially useful for specifying the destination point. Sometimes it doesn’t matter how far you move something – you just want it out of your way. But often you need to move a point a certain distance. Use Relative Coordinates (see page 17) to do this accurately.

ADJUSTING ARC LENGTHS

Use the Set/Measure Dist. function to adjust the length of a curve or a section of an object. You can select any two non-adjacent vertices of an object, and PatternMaker will give you the length of the section connecting them. You can adjust the length by typing in a new value for this distance. PatternMaker will move the vertices along the selected section to adjust the distance. The endpoints of the selected section will not move.

Example: Use SET/MEASURE DIST. to make sure that your armscyes match your sleeve caps. Remember to allow for seams and ease.

Note: Adjust armscyes, neck holes, and other curves with standard patternmaking methods. The MOVE VERTEX command is very handy for this. Then use the SET/MEASURE DIST function to make fine adjustments to a curve. SET/MEASURE DIST works best for adjustments of ½ inch or less.

Note: This command only works when you select a segment with at least three vertices. Therefore, you cannot use this command to adjust the length of a line with only two vertices.

EXAMPLE: THE MOVE VERTEX COMMAND

1. Start out by drawing a square. Select “Move” from the “Points” menu. The program will ask you for a point to be moved. The question looks like this:

Select point (w for selection window):

2. Select the upper right corner of the square by clicking the left button of the mouse on it. Then select the lower right corner by clicking on it too. The program will highlight both points. Your drawing will look something like this:

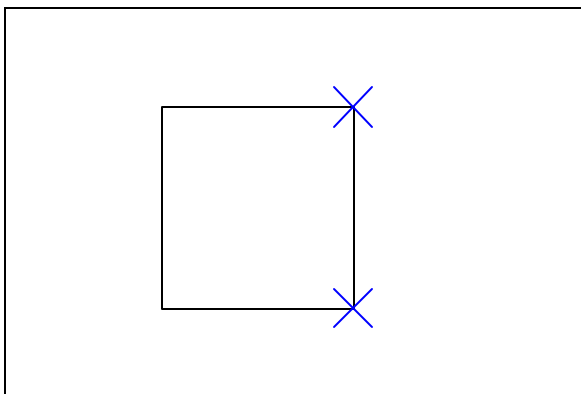


Figure 10: Highlighting points

The ‘x’ marks on the two corners mean these points have been selected. The computer will ask you if there is another point you want to move. Click the right button to stop selecting points.

3. The computer will now ask:

Chapter 3: Getting Started

Base point:

This means it wants to know where to start the move. Click anywhere on the right side of the rectangle as shown below.

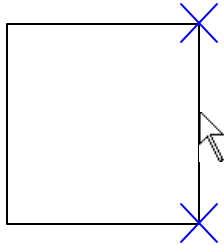


Figure 11: Select the base point for the Move

The computer responds by saying:

Destination:

4. Now move the mouse. You will see the outline move with the mouse, distorting the shape of the square. A cyan (bluish) line appears, showing the distance of the move. When you get the points where you want them, click the mouse.

The screen should look something like this:

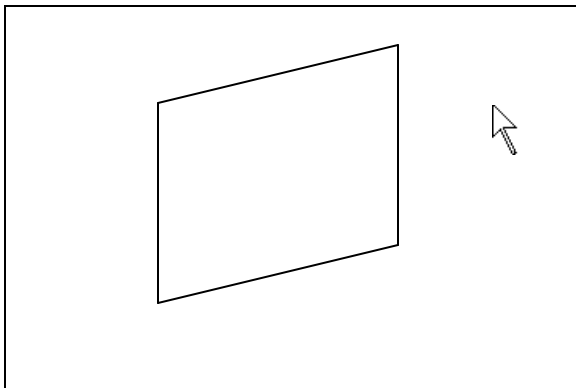


Figure 12: The new shape after you click the mouse

NOTCHES AND TABS

You can define certain points of your objects to be notches or tabs. Use them to show how to align two pieces when they are sewn together. A point that is a notch or tab is drawn differently, but it is treated the same as any other vertex for all other operations. Use the Notch command to change an ordinary point into a notch, or ADD VERTEX to add a notch in a new location.

You can only make a notch or tab where your object has a vertex. You can't put a tab in the middle of an arc, for example, unless you use ADD VERTEX to place a vertex where the tab will go. The arc will then consist of two or more arcs drawn end-to-end.

Sometimes PatternMaker will draw a notch backwards because it isn't sure which is the inside of an object. If this happens, you can reverse the notch.

Here is what the notches and tabs look like. Notice that you can also use the Notch feature for buttonholes.

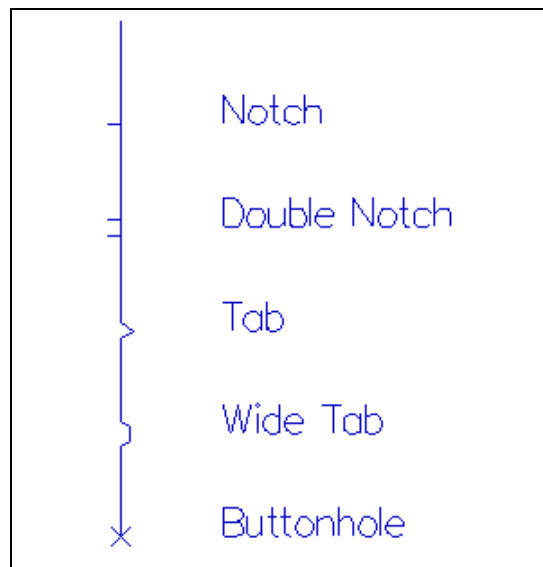


Figure 13: Types of Notch markings

CHAPTER 4: LAYERS, SYMBOLS AND LIBRARIES

OVERVIEW OF LAYERS

Layers are an advanced drawing feature that help you organize objects in your PatternMaker drawings. Every object in your drawing is on a layer. When you turn a layer off, all of the objects on that layer disappear from the screen. You don't see them, they can't be selected, and you can't print them. When you turn the layer back on, the objects reappear.

Note: If you select an object that is grouped with other objects, those objects are selected as well, even if they are on layers that are turned off (See "Groups" in Chapter 13: The SYMBOL Menu). This is the only way to select objects in layers that are turned off.

Use the LAYER command to change the settings for the layers. The CHANGE command is used to change the layer of an existing object. Use the ID OBJECT command to check what layer an object is on.

Example: Suppose your drawing contains several sizes. Put the pieces for each size on a different layer. Give the layers names such as Size8, Size10, etc. When you want to print Size 10, use Layer to turn off all the other layers and then select the Print All command.

Example: Suppose your drawing contains many text items and the time it takes to display these on screen is slowing your computer down. Put all the text objects on one layer and turn it off until you need to see them.

You can assign your objects to layers any way you want, but normally you will want to put each size on a different layer because this is what the Grade command does.

Layer Names and Numbers

Each layer has a number and a name to help you keep track of them. By default, the layers are called "Layer 0", "Layer1", etc. You can change a layer's name but not its number. Some examples of names you might give are "Size10", "Instructions", or "Allsizes".

New Objects and Layers

When you draw an object, it is automatically assigned to the current layer. If you create objects with edit commands such as COPY, they will be on the same layer(s) as the originals. You can change the current layer with the LAYER command – it is the layer marked with an asterisk. The "current layer" area in the middle of the gray part of the menu bar tells you the current layer. When you start up PatternMaker with a new drawing, the current layer is set to Layer 0 and the "current layer" reads "Layer 0 (0)".

When you create new objects by grading, the new objects will be assigned to different layers – a different layer for each size. For instance, if your original is on layer 7 and you make three new sizes, they would go on layers 8, 9, and 10.

Assigning Objects to a Layer

Often you will draw things first, then decide what layer to put them on later. This is fine. If you have a drawing with some objects in it, and you haven't assigned them to layers, then they are probably on Layer 0. Use the CHANGE OBJECT command to move them to a different layer.

Color by Layer

You can assign a color to an object, or you can tell PatternMaker to give it the default color for the layer it is on. An object will be drawn in the layer color if the object's color is "USELAYERCOLOR" (Color 0). When you set the color with the Change or Color commands, USELAYERCOLOR is shown as the color swatch in the upper left-hand corner. USELAYERCOLOR is the default drawing color when you start PatternMaker.

THE LAYER COMMAND

The Layer command is used to display and/or change the settings for the layers. These settings include their names, colors, and whether they are on or off, as well as the current layer for drawing. The Layer command can be selected from the Settings/Set Defaults menu or by clicking the mouse on the name of the current layer in the gray part of the menu bar. When you select the command, a large dialog box will come up with a display of the information for each layer. Each line represents a different layer. Use the scroll bar to see more layers. You can change any of the settings by clicking the mouse on the one you want to change. See Tutorial 9 for practice in doing this.

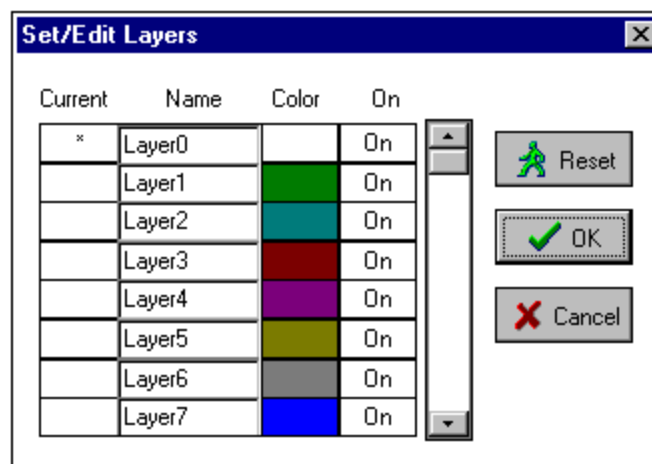


Figure 14: The LAYERS dialog box

Note: In PatternMaker Marker version, there is also a column labeled "Ratio." This gives the cut ratio for that layer.

Setting the Current Layer

You can set the current layer with the Layer command. The current layer is marked with an asterisk and highlighted. Select a different layer by clicking in the "Current" column of the layer list. The previous current layer will be untagged, and the new current layer will be tagged. Close the Layer Box by clicking on "Done". The name of the current layer will be displayed in the Menu Bar.

Any new objects you draw will be placed on the current layer.

Naming a Layer

You can change a layer's name with the Layer command. Click on the name you want to change, and retype it. If the layer you named is the current layer, this new name will be shown in the Menu Bar.

Assigning a Color to a Layer

You can change a layer's default color with the Layer command. Bring up the layer box as described above. Each layer's color is shown as a color swatch. Click on the color swatch for any of the layers. A color box will come up. Click on the color you want, or type a number. When you are done, click "Done" in the layer box. The drawing will be updated to show the new color(s) you have assigned. Remember that the default layer color is ignored if you have assigned a different color to the objects.

Turning a Layer On and Off

You can turn a layer on and off with the Layer command. Just bring up the Layer box and click on the word "on" or "off." When you are done, click "Done" in the layer box.

Cut ratio

(Marker version only)

Use the Layer command to set the cut ratio for a given layer. Click on the number with the left button to increase it, or the right button to decrease it. This number is used by the CUT RATIO command (see Chapter 18: The MARKER Menu).

The Reset and Cancel Buttons

If you click on the Reset button in the Layer box, all layer names, colors and on/off status will be set to the original values. If you Cancel, the Layer command will be canceled and your latest changes will be ignored.

SYMBOLS

A symbol is a piece of a drawing that is repeated in many places. For instance, a grain line can be drawn as a symbol. When you use a grain line symbol, you can add as many identical grain lines as you like.

If you have PatternMaker Home Version, you can use symbols, but you cannot create new symbols or libraries. If you have PatternMaker Expert or Marker versions, you can create your own symbols and libraries as described in this chapter.

If you change the definition of a symbol, that symbol will change wherever it is used in your drawing. PatternMaker includes a library of basic symbols for you to use in your patterns, and with the Expert or Marker versions you can easily make your own symbols and libraries.

There are two phases to using a symbol:

- Create the symbol definition. This is essentially just a group of ordinary objects, but they are kept in the computer's memory and not shown on the screen.

- Insert the symbol in the drawing. This tells PatternMaker what symbol to draw and where to draw it. You can make as many insertions of the same symbol as you like. Since they all refer to the same definition, they will always be the same.

Symbol insertions are one of the four types of PatternMaker objects described in Chapter 3: Getting Started. An insertion is essentially a reference to a symbol definition, telling the computer where to draw it. You can use most of the edit functions on an insertion, without changing the symbol definition.

See Tutorial 10 for examples of symbols.

DEFINING A SYMBOL

(Expert/Marker Versions only)

There are two ways to create a symbol definition:

- Read it out of a symbol library with the Load Symbol command.
- Make a new symbol from objects already in your drawing, using the Create Symbol command. This makes copies of the objects and stores them as a symbol definition, but it doesn't have any effect on the objects themselves.

You can redefine a symbol by creating a new definition with the same name. If there were insertions of the symbol, they will all change when you redefine it.

Details of defining symbols can be found in Chapter 13: The SYMBOL Menu, but the general procedure is as follows:

1. Draw the symbol you want using ordinary drawing commands. For instance, a grain line symbol may consist of several lines (polygons).
2. Select the CREATE SYMBOL command. You will be prompted for a name for your symbol
3. Select all the objects that you want to include in the symbol definition.
4. When you are done selecting these, you will be asked for an insertion point. This is where the vertex of an insertion object goes.
5. After you select the insertion point, you will be told
Symbol xxx created
and you are done.

Remember that the objects you made the insertion from aren't part of the insertion. If you want all your grain lines the same, you should normally erase the objects and replace them with an insertion of the new symbol.

The EXPLODE Command

When you create a symbol, all the objects you selected as parts of the symbol are "grouped" together as one unit. The EXPLODE command is used to "undo" a symbol creation – i.e., the parts of the symbol return to individual objects.

If you use the EXPLODE command on a symbol insertion, it will be replaced with ordinary objects. It will look just the same, but new objects have been created. This is used to modify and redefine existing symbol definitions.

If you use EXPLODE on a polygon, it will be broken up into individual line segments and arcs. It will look just the same, but these will be separate objects.

LIBRARIES

<i>Note: If you have PatternMaker Home Version, you can use the library of symbols that comes with the program, but you cannot create your own libraries.</i>

A library is a file containing symbol definitions, objects, or groups of objects (see Groups, Chapter 13: The SYMBOL Menu). You can open a library and read one or more definitions into your current drawing. First, use the SELECT LIBRARY command to select a library file. Then use one of the Load commands to select the particular item you want to load.

Libraries are a powerful way for you to save and reuse your work. By using libraries, you can reuse your work in many different drawings. Libraries also make it easy for you to share work with other people. Make up libraries of any important pattern pieces, basic blocks, logos or graphics, standard symbols, your name, or anything else that you want to use over and over.

Any drawing (.PAT) file can be read as a symbol library. You can use your ordinary drawings as libraries, or make special-purpose library files. See Tutorial 10 for practice in making and using libraries.

See Chapter 13: The SYMBOL Menu for details on creating libraries, and loading an item from a library file.

SECTION THREE: USING MACROS

CHAPTER 5: YOUR CUSTOM FIT

WHAT ARE MACROS?

Each PatternMaker macro is a small computer program which is run by PatternMaker. You will be asked to type in your measurements. The program then does some calculations and draws a garment pattern. The calculations are the same sort of calculations and measurements a pattern maker uses to draft a pattern with pencil and paper and ruler. The resulting pattern is made up of polygon objects which can be modified like any other object in your drawing. In other words, once you've made a pattern from a macro, you can do anything you like with the results.

One collection of women's garments comes with your PatternMaker program. Many other collections are available separately.

WHY USE A MACRO?

Ever been frustrated with patterns that do not fit? Do you buy patterns that fit your hips, but not your body? Don't you wish you could redraft your patterns to fit **YOUR** measurements, instead of having to use the sizes supplied by a pattern publisher? Do you feel overwhelmed by the thought of drafting a pattern from scratch, or just want a place to start? Macros could be the answer!

PatternMaker's system of macros create custom-fit sewing patterns from your personal measurements. These are more than just slopers – most of the macros draft complete patterns, ready to cut out and sew. You can create an entire wardrobe from a single set of measurements. You don't have to know anything about flat pattern drafting to get a good fit – although if you do, you may enjoy using the macros as a starting point for your own designs.

The macro system also offers unmatched flexibility and expansion opportunities. Many different designers can write macros that will work with PatternMaker. You're not limited to just the garments that come with the system.

WILL IT REALLY FIT ME?

The PatternMaker macros have been well-tested in real life. They are based on a fitting system that has been in use by custom tailors, working with pencil and paper, for years. The collection of macros included with this package have been written by professional tailor Leena Lahteenmaki, and all of the patterns have been tested on subjects with a variety of body types and sizes. We have found that they will fit nearly everybody, large and small. More important, the measurements are easy to take and the measuring instructions are easy to follow. If you *do* need to make adjustments, it's much easier to start with a pattern that already matches your measurements. If you make a mistake, or want to make a change, it's a matter of seconds to redraw a macro with different measurements.

YES, BUT WILL IT REALLY FIT ME?

Our macro patterns will fit nearly everybody over a wide range of sizes and builds, but no computer-generated pattern will fit everybody. If you have a special fitting problem, such as an asymmetrical body, you may need to make adjustments on your own. The macros will give you a good starting point to work from.

Most of these garments require an intermediate or advanced level of sewing skill. If you do not already know how to assemble a garment, install a zipper, etc., you will need to refer to a general sewing text as well as the macro instructions and this manual. Please do not rush. We can give you the patterns, but it's up to you to sew the best clothes you can. For beginners, the Skirt macro is the easiest to make. For advanced sewists and pattern designers, the Bodice macro serves as a sloper, or fitting shell, to design your own patterns.

WHAT ELSE IS THERE?

This PatternMaker package includes the Standard Women's Garment Collection. Many other collections are offered separately. To find out what's currently available, check our web site at:

www.patternmaker.com

WHERE DO I START?

To start making your own patterns, first measure yourself. Your macro package includes a measuring chart which details all the measurements necessary for that particular collection. Make sure you're using the measuring chart specifically for the macro you want to make. Different designers may use different drafting systems, and require different measurements, or that the measurements be taken in a slightly different way.

<p><i>Note: Do not try to measure yourself. It will distort the measurements and give you poor results.</i></p>

Next, run the MACRO command and select the macro file you want to use. Each macro will be a bit different but they all follow the same general format:

- select options and answer questions
- select inches or cm as your working units
- enter measurements

After you input the information for the macro, you will see an hourglass icon while the program runs the macro and draws the pattern. When the macro finishes, the hourglass will turn back to the pointer icon.

If you do not see your pattern, or if you see only part of it, press the <END> key on your keyboard to view the complete pattern.

Refer to the instructions for the MACRO command, in Chapter 8: The FILE Menu for more details.

SECTION FOUR: PRINTING AND ASSEMBLING PRINTED PAGES

CHAPTER 6: SELECTING AND SETTING UP A PRINTER

PatternMaker works with any printing device that is supported by Windows. For a printer to work with Windows, you must have a printer driver installed. Windows comes with many printer drivers, and most other printers come with a diskette containing the proper Windows driver. If your printer can **emulate** a different printer, it will work with that printer's printer driver. In order to set up PatternMaker to print, you need to know what kind of printer you have, which port (plug) it is connected to, and what size paper you are using.

TYPES OF PRINTERS

The best kind of printer to use with PatternMaker is a PEN PLOTTER or similar large-format device. A pen plotter draws by moving a pen around on the paper. Pen plotters are mechanical devices but the best ones are very reliable and the output excellent. Most are in color; and you can select different colors for your plot by replacing pens in the plotter's "carousel". You can find information about this in your plotter's manual.

The other common type of large plotter is the inkjet. Inkjets will cost you less for maintenance, since they have fewer moving parts than pen plotters. Also, the newer models have very user-friendly driver software, so you can use them with a minimum of fuss. The primary drawback of inkjet plotters is speed. While they are faster than pen plotters in drawing very intricate pictures, they are considerably slower in drawing garment patterns. Many plotter manufacturers no longer make pen plotters, so if you are buying a new plotter, you may find that inkjets are your only choice.

While large-format plotters are very handy, their size and cost usually restricts them to use by manufacturers or other commercial users. For users who do not have the space or resources to justify a plotter, PatternMaker can also print on any desktop printer, including dot-matrix printers, ink-jets, or laser printers. The only difference is that the output from these printers will be on many smaller sheets of paper, rather than large rolls.

PAPER SIZE

Most plotters use paper in the following sizes:

- A 8 ½" x 11"
- B 11" x 17"
- C 17" x 22"
- D 22" x 34"
- E 34" x 44"

Other plotters use paper from rolls, in various widths. Large format printers (IOLINE SUMMIT) may use 72" wide paper.

Note that when you configure a plotter or printer for PatternMaker, it usually offers a smaller area. This is the actual area you can print, and it's smaller because most printers do not print out to the edge of the paper.

When you select a printer driver, you are really telling Windows what format to output the data as. For example, most pen plotters support Hewlett-Packard Graphics Language (HPGL), even ones not made by Hewlett-Packard. If you select HPGL output, one of these plotters will work just fine, provided you choose the right paper size.

PRINTER PORTS

When you use the Print Manager to set up your printer you need to know which port it is connected to. A port is a plug in the back of your computer. The choices are:

- LPT1:
- LPT2:
- COM1:
- COM2:
- FILE:

LPT1: and LPT2: are “printer ports” or “parallel ports”. They have 25 pins. The computer side of the plug is female. Most common dot matrix and laser printers connect to the printer port. Your computer may have one or two printer ports.

COM1: and COM2: are “serial ports”. They are commonly used for many plotters as well as some mice, and modems. A serial port has either 9 or 25 male pins. Most computers have at least one serial port.

“FILE:” tells PatternMaker to send printer commands to a disk file instead of to the printer. The print file will be saved on your hard or floppy disk. No printer is required to do this. You can then take this file to a printing service and have it printed.

The printer port selection is made at the time you install your printer. Once the printer is installed, you should not have to change this setting.

DIFFERENCES IN PRINTING

The appearance of your printout will vary somewhat depending on the capabilities of your printer and driver. For instance, some printers only print black and white. Dotted lines may vary from printer to printer. Fill patterns also vary from printer to printer. PatternMaker attempts to make identical outputs on all printers, but this is not always possible. It should, however, be possible to assure that the patterns are always the same size, and very similar in appearance.

CHAPTER 7: PRINTING AND ASSEMBLING A DRAWING

Like all Windows programs, PatternMaker uses the Printers folder in the Control Panel to control the printer. Each particular printing device – printer, plotter, or other – has its own Windows printer driver. This means that PatternMaker can print to any device, as long as you have a Windows driver for that device. If the paper in your printer is too small to print the entire pattern, PatternMaker automatically breaks it up into multiple pages. If you have a fax modem and a software package such as Delrina WinFax®, you can even select the modem as your printing device and send your pattern direct from PatternMaker to somebody else's fax machine.

The Printers folder is part of Windows, so once PatternMaker sends your print job to it, it works just the same as for any other Windows application.

OPTIONS FOR PRINTING

When you have a drawing on the screen that you want to print, there are a few simple steps to follow:

1. **Select your printer:**

Select “Print Setup” from the **File** menu. From the drop-down list, select the printer you want to use. If you want to install a new printer, you must do so prior to this step. See Chapter 6: Selecting and Setting Up a Printer or your printer manual for details on how to do this. When you select a printer, your choice stays in effect for your entire PatternMaker session.

2. **Decide what you want to print:**

WHOLE DRAWING – Use the “Print” command to print all the visible objects in your drawing

SELECTED OBJECTS – Use “Print Select” to print only certain objects

SELECTED AREA – Use “Print Region” to print a rectangular-shaped section of the drawing

3. **Preview the print job:**

Each of the above options takes you to the Print Preview window. Here you can see how the drawing will be arranged on the sheets of paper. The small boxes scattered over the drawing indicate the alignment marks on the corners of each page, showing you how many sheets of paper will be needed. These marks represent the printable area of the paper, according to the abilities of your printer.

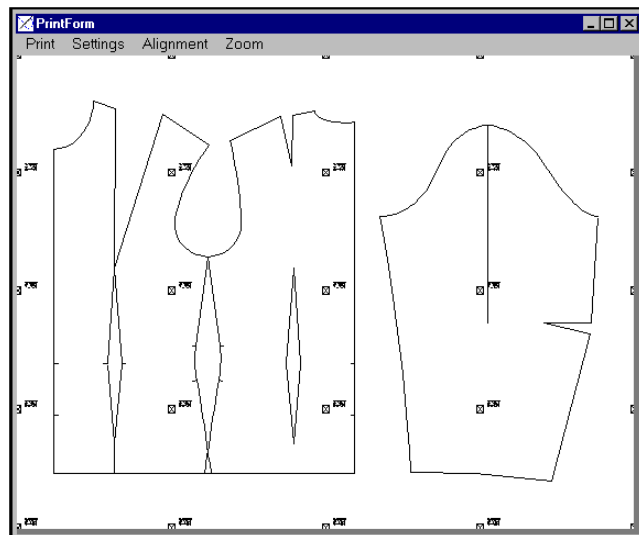


Figure 15: The Print Preview window

If you don't like what you see, you can select a different printer, or change from Portrait to Landscape mode and the marks will change accordingly. You can access the Print Setup window

directly from the **Print** menu in the Preview window, or exit the Preview window and select “Print Setup” from the **File** menu as described above.

PORTRAIT AND LANDSCAPE ORIENTATION

Most Windows printers let you print with the page vertical (“portrait”), or sideways (“landscape”). For most roll-feed plotters, you should select Landscape so that multi-page plots will come off the plotter in the right order.

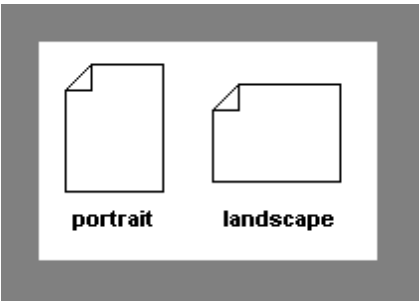


Figure 16: Page orientation

See the File Menu commands in Chapter 8: The FILE Menu for more details on the Print commands.

For information about printing markers, see Chapters 17 and 18.

PUTTING PAGES TOGETHER

Rows/Columns:

Each page that you print can be labeled, if you so choose, with alignment marks and row/column indicators. Together, they help you assemble your multi-page pattern quickly and easily. The name of the file being printed is also included. The row and column indicators tell you where a particular sheet of paper should be placed in the layout. Rows run across the drawing from left to right, and columns run from top to bottom.

	COLUMN 1	COLUMN 2	COLUMN 3
ROW 1	row 1 of 2 column 1 of 3	row 1 of 2 column 2 of 3	row 1 of 2 column 3 of 3
ROW 2	row 2 of 2 column 1 of 3	row 2 of 2 column 2 of 3	row 2 of 2 column 3 of 3

Figure 17: Rows vs. Columns

The pages are printed in order, left to right and top to bottom (see illustration below), so if you assemble them straight from the printer, you will find that it is an easy task to keep them organized. Align the pages as described below, and tape them together. It is better to have too much tape than too little, but you must at least apply tape at the points where the border of a pattern piece crosses from one page to another. If

you are using a continuous-feed printer, you should select Landscape mode in the Print Setup box. This will give you whole rows already connected, rather than individual sheets.

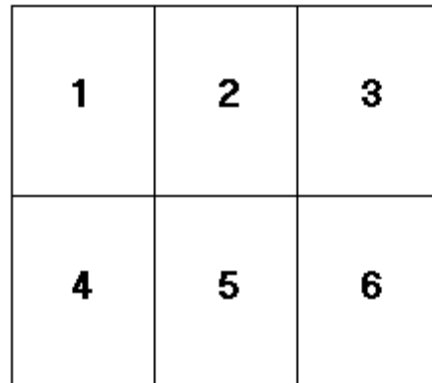


Figure 18: Pages print in this order

(The instructions above apply to desktop printers only. If you are using a plotter you will have much less taping to do, if any, since the paper size is so much larger.)

Aligning Pages:

Each page will have small marks in the corners for alignment (see illustration below left).

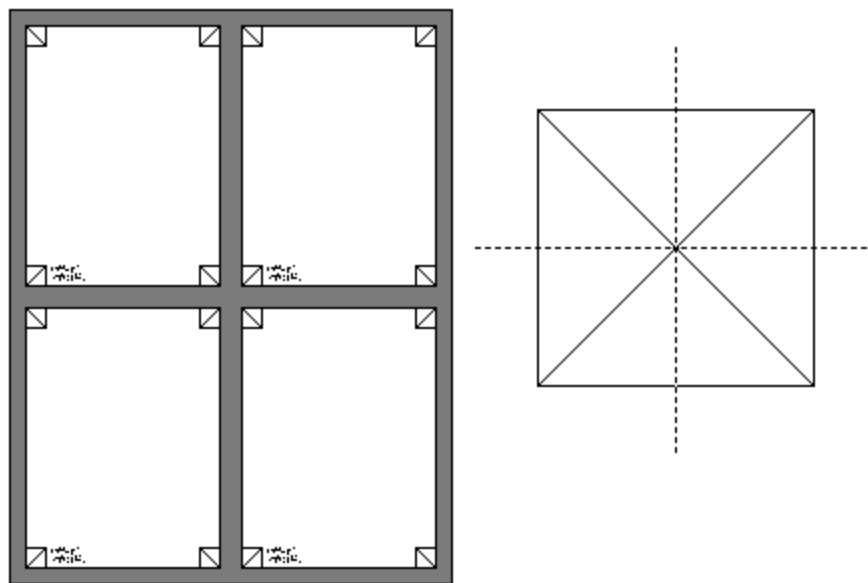


Figure 19: Aligning the corner marks

Each corner of the page represents one-quarter of a square. Put the corners together with the adjoining pages so that each four-page intersection forms a square with an "X" inside. Don't overlap the marks, just touch them together. Every four-page intersection should resemble the illustration (above right).

If you choose to have the pages labeled (the default is Yes), they will be labeled with the file name, row and column number so you will be able to assemble them easily.

SECTION FIVE: THE MENU COMMANDS

CHAPTER 8: THE FILE MENU

N <u>e</u> w	Ctrl+N
O <u>p</u> en...	Ctrl+O
S <u>a</u> ve	Ctrl+S
Sa <u>v</u> e A <u>s</u> ...	
M <u>e</u> rge...	
<hr/>	
P <u>r</u> int...	Ctrl+P
P <u>r</u> int S <u>e</u> lect	
P <u>r</u> int R <u>e</u> gion	
P <u>r</u> int M <u>a</u> rker	
P <u>r</u> int M <u>a</u> rker R <u>e</u> port	
P <u>r</u> int S <u>e</u> tup...	
H <u>P</u> GL P <u>r</u> int S <u>e</u> tting	
<hr/>	
M <u>a</u> cro...	Ctrl+M
<hr/>	
E <u>x</u> it	

The File menu contains all the commands related to working with files, including Opening, Saving, and Printing. The commands you see will depend on what version of PatternMaker you are using. Not all commands are available in all versions.

NEW

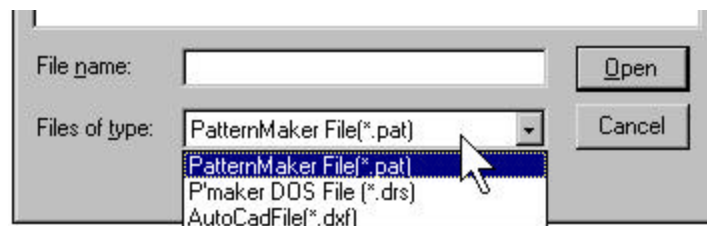
The NEW command starts a new drawing. The old drawing will be closed. If you have made changes to the drawing on the screen, you will be given a chance to save your work.

OPEN

The OPEN command opens an existing drawing which has been saved on disk. Opening a new file replaces whatever is on the screen. If there is a drawing open, the program will ask you if it should be saved.

Procedure:

1. Click the Open icon, or select "Open" from the **File** menu. The Open File dialog box appears.
2. If necessary, navigate to the location of the file you want to open.
3. By default, .PAT files (PatternMaker format) are displayed. If you want to open a different format, for example .DXF, click the "Files of Type" drop-down box and select the file type from the list.
4. Select the file you want to open.
5. Click the "OK" button.



SAVE

The SAVE command saves the current drawing in a .PAT file. (To save in a different format, use SAVE AS, below.) If the file you are working on already has a name, this file will be updated. If you have not named the file, the program will ask you for a name.

Pattern files have names that end in .PAT. A pattern file can be opened again later and modified and/or printed.

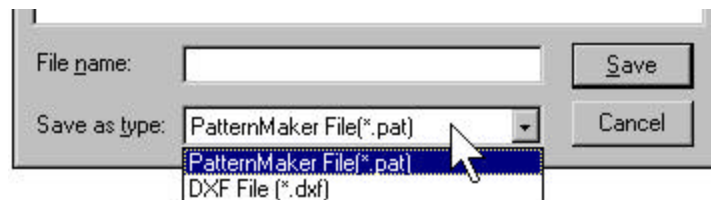
If the file already exists, a backup file will be made. Its file name extension will be “.bak”.

SAVE AS

The SAVE AS command saves the current drawing with a new file name, while leaving the current file unchanged. Use this to save your new work without erasing your old work.

Procedure:

1. Select "Save As" from the **File** menu. The Save File dialog box appears.
2. If necessary, navigate to the location where you want the file to be saved.
3. Type a name for your file, or select a file from the list. If the filename you select or type already exists, that file will be overwritten. If you type in a new name, a new file is created.
4. PatternMaker automatically adds the ".pat" extension. If you want to save in a different format, for example .DXF, click the "Save as Type" drop-down box, and select the file type from the list.
5. Click the "Save" button.



MERGE

The MERGE command adds one drawing to another. This is exactly the same as the OPEN command, except that the old drawing is not closed before loading the new one.

Procedure:

1. Select "Merge" from the **File** menu. The Open File dialog box appears.
2. Select the file you want to merge. Everything in this file will be added to the current drawing.
3. Click the "Open" button.

The Layer settings will be changed to those of the new file. Any symbol definitions with duplicate names will be redefined.

MERGE cannot be reversed with the UNDO command.

Note: Since you cannot control where on the screen the new drawing will appear, you may need to move some pieces out of the way before merging, to avoid having pieces in the new file overlap the existing pieces.

PRINT

The PRINT command prints the entire drawing. If your printer is not big enough for the whole pattern, PatternMaker automatically prints as many pages as necessary. PatternMaker will print to any Windows-compatible printing device.

When you click the Print icon, or select "Print" from the **File** menu, the Print Preview window opens (see illustration below). This window lets you see how the drawing will be arranged on the pages.

The small boxes scattered over the drawing indicate the alignment marks on the corners of each page, showing you how many sheets of paper will be needed. These marks represent the printable area of the paper, according to the abilities of your printer. You can change from Portrait to Landscape mode (in File/Print Setup) and the marks will change accordingly.

The Print Preview menus are as follows:

Print:

Print Pages	Print the drawing according to the selected options
Print Setup	Open the Print Setup window to change printer options
Exit Printing	Close the Print Preview window and return to the drawing screen

Settings:

Alignment Marks	Choose whether you want the pages to print with alignment marks. The default is Yes.
Label Pages	Choose whether you want the pages to print with labels (Row/Column and File Name). The default is Yes.

Alignment:

Top/Middle/Bottom	Select how the printing is aligned on the pages up-and-down. The default is Middle.
Left/Center/Right	Select how the printing is aligned on the pages side-to-side. The default is Center.

Zoom:

Zoom In (F2)	Make the view of the drawing larger
Zoom Out (F1)	Make the view of the drawing smaller

Note: Printing a pattern may take lots of pages on a desktop printer, and require taping a lot of pages together. To avoid wasting paper, make sure your pattern has only the pieces you need and that they are as close together as possible. Use the MOVE, ROTATE, and ERASE commands to arrange the pieces for printing.

PRINT SELECT

The PRINT SELECT command lets you select one or more objects to print, rather than the entire drawing.

Procedure:

1. Select the PRINT SELECT command from the **File** menu. The prompt on the command line says: `Select Objects to Print:`
2. Select one or more objects by clicking on them with the left mouse button. Each piece that you select is highlighted. If you make a mistake, click on an object again to UN-select it.
3. **To stop selecting objects**, click the right mouse button, or press the <ESC> key.
4. The Print Preview window will now open. Continue according to the PRINT instructions. The program will print as many pages as necessary to cover the object(s) you selected.

PRINT REGION

The PRINT REGION command lets you select a rectangular-shaped area to print, rather than the entire drawing.

Procedure:

1. Select the PRINT REGION command from the **File** menu. The prompt on the command line says `Enter a point, <ESC> to cancel.`
2. Click on one corner of the area you wish to print – for example, the upper left corner.
3. The prompt on the command line says `Second point, <ESC> to cancel.` As you move the mouse around, you will see the box changing shape. This box represents the area that will be printed.
4. When you have defined the area you want to print, click the left mouse button again. The Print Preview window will now open. Continue according to the PRINT instructions. The program will print as many pages as necessary to cover the area you selected.

PRINT MARKER

(Marker version only)

PRINT MARKER prints the marker area. Like the PRINT command, it will print as many pages as necessary.

You can use the PRINT MARKER command from either the Draw Mode or the Marker Mode. In Draw Mode, all objects visible in the marker area will be printed. If an object's layer is turned off, it will not be printed. If the display is in Marker Mode, non-marker objects are not printed.

Print Marker uses the same Print dialog boxes as the other printing commands.

PRINT MARKER REPORT

(Marker version only)

PRINT MARKER REPORT sends a marker report to the printer. The marker report is described under the MARKER REPORT command (**Marker** menu).

PRINT MARKER REPORT uses the standard Windows Print dialog boxes. Print Report is available as a command on the **File** menu, or as an option under the MARKER REPORT command.

PRINT SETUP

The PRINT SETUP command takes you to the Windows Print Setup dialog box. Here you can change which printer you are going to use, and also change the page orientation (Portrait to Landscape, or vice versa).

You can access this dialog box either from the **File** menu in the main drawing screen, or from the Print menu in the Print Preview window.

Make the changes you want, and then click the "OK" button.

HPGL

The HPGL Settings dialog box lets you specify certain characteristics and requirements of your Ioline plotter. Consult your plotter documentation if you are uncertain about any of these settings.

Com Port:

Choose the COM: port that the plotter is connect to.

Mode:

Choose which mode (language) you are using.

Frame X/Y:

Set the correct length and width for the paper you are using.

Print Queue:

Shows all the jobs that are waiting to be printed. You can delete a job from this list by highlighting the file and clicking the "Delete" button.

MACRO

The MACRO command runs a macro. Macros are small programs that run inside PatternMaker to create basic blocks and patterns.

Procedure:

1. Activate the MACRO command by clicking on the Macro icon, or select "Macro" from the **File** menu.
2. The Open File dialog box appears, asking you to select a file. Each macro is a file with a name ending in ".MAC", such as LBODICE.MAC. The name of each macro file is given, along the descriptions of the macros, in the separate instructions that accompany the macro collection.
3. You will now see a series of dialog boxes which ask questions and offer choices. The choices are different for each macro. (For instance, for the women's dress, you will be asked if you want a sleeveless dress or one with sleeves.) To continue through the macro, use your mouse to click on one of the options. If you click "Cancel," or if you click "OK" without making a selection, the macro will abort and you will be returned to the drawing screen. Also, be aware that you cannot move backwards through the options. You may wish to write down which options you choose.
4. After you have made your choices, a dialog box will ask you for the measurements. Some of the macros will have two dialog boxes for measurements. Fill these in from your measurement chart (included with the macro collection). Remember to use decimal numbers, so 8-3/4 inches is 8.75 inches, and so forth. (See the Fraction Conversion Chart below.) Be careful to enter the right numbers in the right spaces. When you are ready, click "OK" or press the <ENTER> key.
5. While the macro is running, the mouse pointer turns into an hourglass. You may have to wait for the macro to run, especially if you do not have a fast computer, or if the macro you used is especially complicated. You will know the macro is done when the hourglass cursor changes back to an arrow and the word Command: appears on the command line.



Figure 20: a macro dialog box

IF YOU CANNOT SEE THE PATTERN PIECES, OR IF YOU ONLY SEE PART OF THEM, PRESS THE <END> KEY TO VIEW ALL THE PIECES IN THE DRAWING.

The macro will draw your new pattern in the drawing area. If there is a drawing on the screen when you run a macro, the macro will be *added to* what is on the screen. It may overlap existing pieces. If this happens you can use the MOVE command to move things around. Use the ZOOM and PAN commands to view different parts of the drawing.

A macro can be run as many times as you wish, using different measurements. However, it does not save a list of a person's measurements. The measurements must be re-entered each time a macro is run.

Fraction	Decimal
1/8	.125
1/4	.25
3/8	.375
1/2	.5
5/8	.625
3/4	.75
7/8	.875

This command *cannot* be reversed using the UNDO command.

EXIT

The EXIT command allows you to exit the PatternMaker program. If there is a drawing open, you will be given a chance to save it.

CHAPTER 9: THE DRAW MENU

The Draw menu contains commands used to create various objects in your drawing. Everything in your drawing is an object – the outline of a bodice piece is an object, the arrow showing the grainline is an object, and the text that says “Bodice Front” is an object.

Dim
Text
Poly
Rectangle
Line
Circle
Dot
Offset
Seam Allowance

DIM

The DIM command draws dimension lines. Dimensions are one of the four kinds of objects in PatternMaker. A dimension has two arrows indicating two points, and some numbers giving the distance. If you ever change or resize a dimension object, its length is recalculated and the numbers are updated between the points.

Procedure:

1. Activate the DIM command by clicking on the Dim icon, or by selecting "Dim" from the **Draw** menu. The prompt Enter a point, <ESC> to cancel: will appear on the command line.
2. Click on the screen or type a position in coordinate format to indicate the start point of the dimension line. (This would usually be a point on one end of the line or object you want to measure.) The prompt Second point; <ESC> to cancel: will appear on the command line.
3. Click on the screen or type a position in coordinate format to indicate the end point of the dimension line (a point on the other end of the line or object). The prompt on the command line says Location for label:.
4. As you move the mouse around, you can see where the label will be placed. Click on the screen when the label is positioned where you want it. The text will be automatically inserted indicating the distance between the two points.

Note: You can change the appearance of the DIM units, including the size of the text and the length of the arrows. See the DIM SETTINGS and UNITS commands for more details.

Hint: It is often convenient to use Snap To End Point to place Dimension lines next to objects you want to dimension. See “Snap Modes” in Chapter 2: The PatternMaker Environment.

This action can be reversed by using the UNDO command.

TEXT

The TEXT command inserts a label (words or numbers) into your drawing. Text is one of the four types of objects in PatternMaker. When you draw text, the program will ask you for a size, rotation angle, and the text you want to draw. The size is the height of the letters, in inches. The angle is the angle at which you want the text drawn. This is measured from a horizontal line, so text with an angle of 90 degrees goes straight up.

Once a text object is placed in the drawing, you can use CHANGE TEXT to change the size, rotation, or the text itself.

Use CHANGEFONT to set the style, or COLOR to set the color of your text.

A list of available fonts appears on page 92.

This action can be reversed by using the UNDO command.

POLY

The POLY command draws polygons. A polygon object can be any arbitrary shape, and can have both straight and curved segments. Polygons can be either open or closed.

Procedure:

1. Activate the POLY command by clicking on the Poly icon, or select "Poly" from the **Draw** menu. The prompt on the command line says *Enter first point:*
2. Continue to enter the points of the polygon by clicking the left mouse button or by typing a position in coordinate format.
3. Click the right mouse button or press the <ESC> key to open the Options menu (see list below). Use these options to make curves, undo points, or end the polygon.
4. To finish drawing the polygon, select either Done (Closed) or Open (Done) from the Options menu.

Options:

- *Line* (the default). This draws straight lines.
- *Tangent line* This draws a line, but it forces this line to continue in the direction established by the previous segment. After you draw this segment, the option reverts to Line.
- *Perpendicular line* This draws a line, but it forces this line to be at a right angle to the previous segment. After you draw this segment, the option reverts to Line.
- *Arc* This begins an xarc. The next point you input will be the corner point, and the point after that will be the end point of the xarc.
- *Automatic arc* This begins an xarc, but you don't need to input a corner point. Instead, you input the end point and PatternMaker places the corner point. It does this such that the arc is tangent to the previous segment of the object. This is useful for drawing complicated curves that consist of several xarcs end-to-end.
- *Arc through point* This also begins an xarc. The difference is that the next point you select is not the corner point. Instead, PatternMaker calculates the corner point so that the arc will go through the point you selected. This is especially useful when "tracing" a pattern with a digitizing pad.

- *No notch* Draws the next point without any notch mark (this is only used to undo one of the following notch, tab or buttonhole options).
- *Notch* Draws the next point as a notch mark.
- *Dbf. notch* Draws the next point as a double notch.
- *Tab* Draws the next point as a tab.
- *Wide tab* Draws the next point as a wide tab.
- *Buttonhole* Draws the next point as a buttonhole.

- *Done (Closed)* This finishes drawing the object and makes it a closed polygon.
- *Open (done)* This finishes drawing the object and makes it an open polygon.
- *Cancel* This cancels the command and gets rid of the partially drawn object.
- *Undo last point* This removes the last point you drew, then lets you continue from there.

The notch, tab and buttonhole options only apply to the next point you draw. To draw more notch marks, you need to reselect the option. For the other options (line, arc, etc.), once you select an option, it stays in effect until you select another option.

This action can be reversed by using the UNDO command.

RECT

This command draws a rectangle or square.

Procedure:

1. Activate the RECT command by clicking on the Rect icon, or select "Rect" from the **Draw** menu. The prompt on the command line says *Enter a point, <ESC> to cancel:*
2. Enter one point of the rectangle (for example, top left) by clicking on the screen, or by entering coordinates. The prompt on the command line says *Second point, <ESC> to cancel:*
3. Enter the opposite corner of the rectangle (for example, bottom right) by clicking or by entering coordinates.
4. You can tell you are finished with the command when the word RECT on the Status Bar returns to purple. To cancel the command without drawing the rectangle, click the right mouse button or press <ESC> until the command name is purple.

A rectangle is a closed polygon object with four points. You can use the various editing commands to change a rectangle, just like any other object.

This action can be reversed by using the UNDO command.

LINE

The LINE command draws a line. A line is a polygon object with two points. You can use the various editing commands to change a line, just like any other object.

Procedure:

1. Activate the LINE command by clicking the Line icon, or select "Line" from the **Draw** menu. The prompt on the command line says *Enter a point, <ESC> to cancel:*
2. Enter the first point of the line by clicking on the screen or by typing a position in coordinate format. The prompt on the command line says *Second point, <ESC> to cancel:*
3. Enter the second point by clicking on the screen or by typing a position in coordinate format
4. You can tell when you are finished with the command when the word **LINE** on the Status Bar returns to purple. To cancel the command without drawing the line, click the right mouse button or press <ESC> until the command name is purple.

This action can be reversed by using the UNDO command.

CIRCLE

The CIRCLE command draws a circle. A circle is a polygon object with four curved segments and eight points. You can use the various editing commands to change a circle, just like any other object.

Procedure:

1. Activate the CIRCLE command by clicking on the Circle icon, or select "Circle" from the **Draw** menu. The prompt on the command line says *Enter a point, <ESC> to cancel:*
2. Enter a point for the center of the circle either by clicking on the screen or by typing a position in coordinate format. The prompt on the command line says *Radius or point on perimeter of circle:*
3. Click to select a point on the perimeter, or type in a radius. The radius of a circle is the distance from the center to the edge, not the distance across the circle.
4. You can tell when you are finished with the command when the word **CIRCLE** on the Status Bar returns to purple. To cancel the command without drawing the circle, click the right mouse button or press <ESC> until the command name is purple.

This action can be reversed by using the UNDO command.

DOT

The DOT command draws a dot. Select the command, then enter a point.

A dot is a polygon object with only one point. It can be used to match two pattern pieces together. The dot is drawn as a small circle.

Caution: Not all printers print dots the same way they appear on the screen. Make sure your printer can print dots before you use very many of them in your drawings.

This action can be reversed by using the UNDO command.

OFFSET

The OFFSET command creates a polygon object that is offset a certain distance from an existing polygon. This is useful for creating fixed-width seam allowances. You can offset both open and closed polygons, and you can put the offset object on either the inside or the outside of the original.

Procedure:

1. Activate the OFFSET Command by clicking on the Offset icon, or click "Offset" on the **Edit** menu.
2. Select the object you want to add seam allowance to by clicking the left mouse button on it. You can only select one object at a time. The command line will keep you informed as objects are selected and unselected.
3. **To stop selecting objects**, press the <ESC> key, or click the right mouse button. A "Distance" dialog box will appear.
4. Enter the amount of seam allowance you want. Remember to use decimal numbers, not fractions. Click the "OK" button. A seam allowance will be drawn around the selected piece.

The offset object, once drawn, is an object separate from the original object. You can do any of the things with it that you can do with any other PatternMaker drawing object.

Note: The OFFSET command may not work well for objects that contain sharp angles or inward bends, or that overlap or cross over themselves. Most normal pattern pieces will not have this problem unless they contain darts. One way to avoid this problem is to draw the dart as a separate object from the main pattern piece.

Hint: Use ID Point if you think your object may have "hidden" kinks or stray vertices.

This action can be reversed by using the UNDO command.

SEAM ALLOWANCE

The SEAM ALLOWANCE command adds a seam allowance to an object. You can vary the width of the seam allowance as it goes around the object. You can add seam allowance to both open and closed polygons, and you can put the seam allowance object on either the inside or outside of the original.

Procedure:

1. Activate the SEAM ALLOWANCE command by clicking "Seam Allowance" on the **Draw** menu. The prompt on the command line says `Select offset starting point:`
2. Select a vertex of a polygon object where you want the seam allowance to begin. If you make a mistake, just click another point to replace the first. The command line will keep you informed as points are selected and unselected.

3. When you have selected the point you want, right-click (or press <ESC>). The prompt `Select end of segment :` will appear on the command line.
4. Select a second point of the same object and right-click (or press <ESC>) again. These two points define the segment to which the seam allowance will be added. PatternMaker highlights the section connecting these two points and asks you if it is the right section. (The program needs to know whether to go clockwise or counterclockwise around the object.) If you click "Yes" the command will continue; if you click "No" the program will highlight the section of the object in the opposite direction and repeat the question.
5. Next, a dialog box appears, asking you for the offset distance. Enter the width of the seam allowance for this section. A positive number will draw the offset outside the original object; a negative number will draw the offset inside the original object. Remember to use decimal numbers, not fractions.
6. To exit the dialog box, choose one of the three option buttons:
 - Continue:** the seam allowance is added to the selected segment. Click the "OK" button to return to the drawing screen to select the next segment. Steps 4 and 5 will be repeated until you select one of the "Done" options, or go all the way around the original object.
 - Done/Closed:** the seam allowance is made into a closed object – in other words, it continues all the way around the original object at the width you specified
 - Done/Open:** the seam allowance ends just as it is (an open object)
7. Click the "OK" button to accept the settings and return to the drawing screen to select the next segment; click "Cancel" to abort the command.

After the seam allowance is drawn, you can use the `CHANGE OBJECT` command to change the line style of one of the objects. This can be useful, for example, if you want to indicate a stitching line by using a dashed or dotted line.

The seam allowance object, once drawn, is an object separate from the original object. You can do any of the things with it that you can do with any other PatternMaker drawing object.

Note: The SEAM ALLOWANCE command may not work well for objects that contain sharp angles or inward bends, or that overlap or cross over themselves. Most normal pattern pieces will not have this problem unless they contain darts. One way to avoid this problem is to draw the dart as a separate object from the main pattern piece.

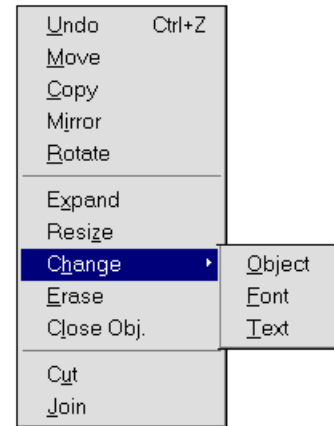
Hint: Use ID Point (<F5>) if you think your object may have "hidden" kinks or stray vertices.

This action can be reversed by using the `UNDO` command.

CHAPTER 10: THE EDIT MENU

PatternMaker has many editing commands that allow you to move, change and adjust objects. These commands are all found in the **Edit** menu.

One thing these commands all have in common is that when you select an object, the command applies to the entire object. There is a second set of commands which have to do with points of objects. These are listed in the **Point** menu (see Chapter 11: The POINT Menu).



UNDO

The UNDO command reverses the last drawing or editing command.

Procedure:

1. Click the Undo icon, or select "Undo" from the **Edit** menu.
2. The last change you made will be undone. If you drew an object, it will be erased. If you moved an object, it will be returned to its original position, and so on.

Some commands cannot be undone, including: SAVE, SAVE AS, and CREATE SYMBOL. Zoom and Pan commands don't count – UNDO will reverse whatever you did before the Zoom. In general, drawing, editing, grading and marker commands can be undone.

You cannot use UNDO more than one time in a row. If you have just done an UNDO, the command is inactive until you complete another undoable action.

If you make a really disastrous mistake, reopen the file you have saved your drawing in. Even if you never make mistakes, you should save your work periodically in case of computer crashes and other accidents. (See the instructions for the SAVE and OPEN commands.)

MOVE

The MOVE command moves one or more objects.

Procedure:

1. Activate the MOVE Command by clicking on the Move icon, or click "Move" on the **Edit** menu.
2. Select the object(s) to move by clicking the left mouse button on them. You can select and unselect as many objects as you want by repetitive clicking. The command line will keep you informed as objects are selected and unselected. If you want to move a whole pattern piece, be sure to select *all* of its pieces – i.e. darts in a bodice piece, grainline marks, etc.

3. **To stop selecting objects**, press the <ESC> key, or click the right mouse button. The prompt `Base point?` will appear on the command line.
4. The base point (the start of the move) is like grabbing a handle on the pieces to move. Simply click somewhere within the selected object(s). The command line will now ask for `Destination?`
5. Move the mouse around to move the piece(s). The distance from the original position to the new position is the distance from the Base Point to the Destination. All of the selected objects move the same distance, so the MOVE command keeps them together. You will see a light blue line showing the origin and destination of the piece(s).

Note: Do not "click and drag." Click once where you want to start moving the pieces; release the mouse button; and then click again where you want them to end up.

6. You can also enter a destination by typing a position in coordinate format.

If you want to move pieces off the edge of the screen, use the ZOOM or PAN commands to see where you are going. You can use ZOOM and/or PAN even if you're in the middle of another command.

This action can be reversed by using the UNDO command.

COPY

The COPY command copies one or more objects. COPY is just like MOVE, except that you get one copy of the selected objects in the original position, and one copy in the new position.

Procedure:

1. Activate the COPY command by clicking the Copy icon, or select "Copy" from the **Edit** menu.
2. Select the object(s) you want to copy by clicking the left mouse button on them. You can select and unselect as many objects as you want by repetitive clicking. The command line will keep you informed as pieces are selected and unselected. If you want to copy a whole pattern piece, be sure to select *all* of its pieces – i.e. darts in a bodice piece, grainline marks, etc.
3. **To stop selecting objects**, press the <ESC> key, or click the right mouse button. The prompt `Base point?` will appear on the command line.
4. The "base point" is like grabbing a handle on the pieces to move. Simply click somewhere within the selected object(s). The command line will now ask for `Destination?`
5. Move the mouse around to copy the piece(s). You will see a light blue line showing the origin and destination of the piece(s).
6. You can also enter a destination by typing a position in coordinate format.

This action can be reversed using the UNDO command.

MIRROR

The MIRROR command creates a mirror-image copy of the selected object(s).

Procedure:

1. Activate the MIRROR command by selecting "Mirror" from the **Edit** menu. The command line prompts you to select an object.
2. Select the object(s) you want to mirror by clicking the left mouse button on them. You can select and unselect as many objects as you want by repetitive clicking. The command line will keep you informed as pieces are selected and unselected. If you want to mirror a whole pattern piece, be sure to select *all* of its pieces – i.e. darts in a bodice piece, grainline marks, etc.
3. **To stop selecting objects**, press the <ESC> key, or click the right mouse button. The prompt *Start of line to reflect across:* will appear on the command line.
4. Click on the screen to indicate the beginning of the reflection line. The prompt *Second point of reflection line:* will appear on the command line.
5. If you want a vertical mirror, just press <ENTER>. Otherwise, move the mouse around, and watch the reflection line move accordingly. You can reflect at any angle.
6. When you have the line the way you want it, click the left mouse button. The object(s) will be reflected across the line.

The MIRROR command is important for completing the second half of a pattern. For instance, you can draft the right side of a blouse in great detail, then make the left side all at once with MIRROR. You will also use MIRROR to create pieces when you are laying out markers.

Example: Suppose your blouse pattern has a single-piece front. Make a half front piece – one that goes from the Center Front line to the right side seam. Add darts, seam allowances, adjust the fit, etc. When it's all ready, select the MIRROR command. Select the main piece as well as the darts and other objects. When you are prompted for the mirror line, use Snap to End Point (<F3>) to select the Center Front-Collar point and the Center Front-Waist point. Now you have two pieces that meet along the Center Front line. Use JOIN to join these together, and you have your symmetrical front piece.

This action can be reversed by using the UNDO command.

ROTATE

The ROTATE command rotates one or more objects around a "center point".

Procedure:

1. Activate the ROTATE command by clicking "Rotate" on the **Edit** menu.
2. Select the object(s) to rotate by clicking the left mouse button on them. You can select and unselect as many objects as you want by repetitive clicking. The command line will keep you informed as objects are selected and unselected. If you want to rotate a whole pattern piece, be sure to select *all* of its pieces – i.e. darts in a bodice piece, grainline in a sleeve, etc.
3. **To stop selecting objects**, press the <ESC> key, or click the right mouse button. The prompt *Rotate about what point?* will appear on the command line.

4. Click on the point you want the pieces to rotate around – like the center of a clock. The prompt Rotation (angle or base point of rotation) will appear on the command line.
5. You can enter the rotation angle in one of three ways:

- *Angle:* Type in the number of degrees you want to rotate the object(s). Your objects will rotate counterclockwise (left) that many degrees. To rotate the objects 90 degrees, type 90 and press <ENTER>. To go 90 degrees clockwise (right), type 270 and press <ENTER>. (There's no cursor on the command line, and you don't have to click there – just type the numbers.) After you press <ENTER>, the pieces rotate, and you are done with the command.
- *Base point and end point:* The base point is like a "handle" that you use to pick up the object(s). Click somewhere to indicate the base point. Next, move the mouse around and watch the object(s) rotate around the center point. As you do this, you will see two cyan (bluish) lines which indicate the angle of rotation between the two points. When the object has rotated as much as you want, click the left mouse button to end the rotation and "drop" the object.

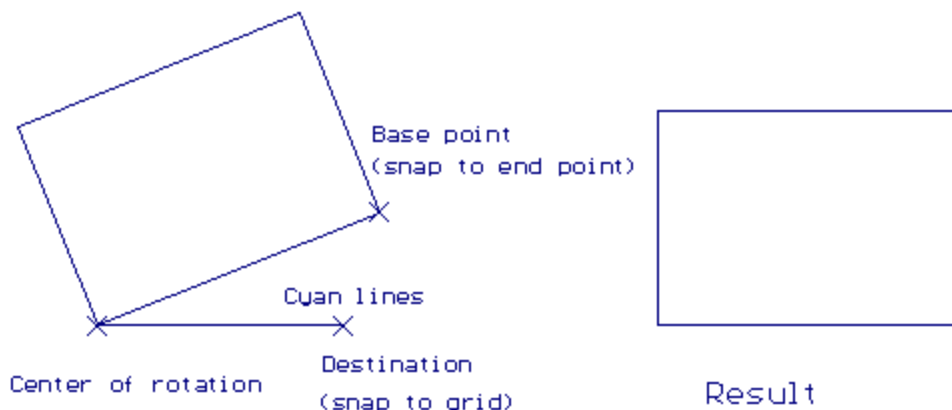
Hint: Using Snap To End Point or Snap To Grid when you select the start and end points will allow you to rotate objects to align with each other, or with a horizontal line (see illustration below).

- *Base point and distance:* Click somewhere to indicate the base point, then type in a number. The number represents either inches or centimeters, depending on the Units you are working in. PatternMaker calculates a rotation angle such that the selected point moves the specified distance. This is for certain pattern layout procedures that require you to rotate an object for a measured distance.

You don't have to select the above choices from a list. Just start entering the information and PatternMaker will figure out which method you are using.

This action can be reversed by using the UNDO command.

In this example, a rectangle is being rotated to align it with the grid:



SCALE

The SCALE command makes objects larger or smaller, using one scaling factor for both X (horizontal) and Y (vertical) directions. Use this command to change the sizes of objects without changing their shapes.

Procedure:

1. Activate the SCALE command by selecting "Scale" from the **Edit** menu.
2. Select the object(s) to scale by clicking the left mouse button on them. You can select and unselect as many objects as you want by repetitive clicking. The command line will keep you informed as objects are selected and unselected. If you want to scale a whole pattern piece, be sure to select *all* of its pieces – i.e. darts in a bodice piece, grainline marks, etc.
3. **To stop selecting objects**, press <ESC> or click the right mouse button.
4. The command line will now display the original dimensions of the object(s). A cyan (bluish) square is drawn to indicate the original area of the selected object(s). As you move the mouse, a green box indicates the new area.
5. Click the left mouse button when the green box is the size you want the objects, or use one of the following options. Select an option either by typing a letter, or with an icon:

<i>C = set center</i>	By default, the lower left corner of the cyan square is the center of expansion, i.e. it doesn't move. If you want to have a different center, type C. You will be prompted for a new center point. Input this point and then continue with the command.
<i>P = scale around corner</i>	This option sets the lower left corner as the center of expansion. It is the opposite of the C option. This is the default for the command.
<i>F = enter scaling factor</i>	You will be asked for the scaling factor. (For example, ".5" is half the size; "3" is three times the size.) Enter this in the dialog box and click "OK". This option will also be selected if you type in a single number.
<i>X/Y = size to measure</i>	These options calculate a scaling factor to give you a measurement you want. This will save you doing some math. You will be asked to select two points in the drawing. (To measure horizontally, select X; to measure vertically, select Y.) PatternMaker will tell you the current distance between these points, and ask you what you want the distance to be. PatternMaker will then calculate a scaling factor to give you the distance you want.

Example: Suppose you have used your digitizing pad to copy a pattern from a book in 1/6 scale. Choose the SCALE command, select all objects, then type F and enter a scaling factor of 6. Now, when you print it, your pattern will be life size.

Note: Text and symbol insertions change size if you use SCALE. These two object types do not change size using RESIZE.

This action can be reversed by using the UNDO command.

RESIZE

The RESIZE command is used to change an object's shape and size. Different scaling factors are used for the X (horizontal) and Y (vertical) directions, so you can change the size and proportion of objects simultaneously.

Procedure:

1. Activate the RESIZE command by clicking the Resize icon, or select "Resize" from the **Edit** menu.
2. Select the object(s) to resize by clicking the left mouse button on them. You can select and unselect as many objects as you want by repetitive clicking. The command line will keep you informed as objects are selected and unselected. If you want to resize a whole pattern piece, be sure to select *all* of its pieces – i.e. darts in a bodice piece, grainline marks, etc.
3. **To stop selecting objects**, click the right mouse button, or press the <ESC> key.
4. The command line will now display the original dimensions of the object(s). A cyan (bluish) square is drawn to indicate the original area of the selected objects. As you move the mouse, a green box indicates the new shape and size. The objects will be resized by X and Y factors that make them fit the green box.
5. When the green box is the size and shape you want, you can click the left mouse button to resize the objects. However, rather than using the mouse to resize “by eye,” you will usually want to use one or more of the following options. Select an option either by typing a letter, or with an icon:

- | | |
|---------------------------------|---|
| <i>C = set center</i> | By default, the lower left corner of the cyan square is the center of expansion, i.e. it doesn't move. If you want to have a different center, for example if you want the right side of an object to stay put while the left side moves, type C. You will be prompted for a new center point. Input this point and then continue with the command. |
| <i>P = resize around corner</i> | This option sets the lower left corner as the center of expansion. It is the opposite of the C option. This is the default for the command. |
| <i>F = enter scaling factor</i> | You will be asked for the scaling factors. (For example, ".5" is half the size; "3" is three times the size.) Enter them in the dialog box and click "OK." If one of the numbers is negative, the selected object(s) will be reversed. |

Example: Suppose your material requires a shrinkage allowance of 3% in one direction and 6% in the other. Your pattern pieces need to be expanded by factors of 1.03 and 1.06, respectively. After selecting all objects in the drawing, type F. Type 1.03 and 1.06 into the dialog box and select "OK".

- | | |
|------------------------------|--|
| <i>X/Y = size to measure</i> | These options calculate a scaling factor to give you a measurement you want. This will save you doing some math. If you select X, the objects will be resized in the X direction, but the Y scale will stay the same. If you select Y, the Y scale will change, and the X scale stays the same. You will be asked to select two points in the drawing. PatternMaker will tell you the current distance between these points, and ask you what you want the distance to be. Even if you select two points that are on a diagonal, PatternMaker will calculate a scaling factor to give you the distance you want. |
|------------------------------|--|

Example: Suppose you have a blouse with a center front measurement of 14 inches and you want to change it to 15 inches. Select the blouse object and any associated objects such as darts, etc. Then type x . The prompt will ask you for the first control point and then the second control point. Use Snap to End Point to select the points at the top and bottom of the center front line. A dialog box will then say,

Original measurement is 14.000000

Type in 15 and click "OK." Your blouse will be made taller but its width will stay the same.

This action can be reversed by using the UNDO command.

CHANGE OBJECT

The CHANGE OBJECT command changes one of the basic attributes (color, fill, layer, line type) of one or more objects.

Procedure:

1. Activate the CHANGE OBJECT command by selecting "Change..." from the **Edit** menu, then select "Object" from the submenu.
2. Select the object(s) you want to change by clicking the left mouse button on them. You can select and unselect as many objects as you want by repetitive clicking. The command line will keep you informed as objects are selected and unselected.
3. **To stop selecting objects**, press the <ESC> key, or click the right mouse button. The Change dialog box appears.
4. Select which attribute you want to change (Color, Pattern, Layer, or Line Type) and click the "OK" button.
5. The next dialog box shows the choices for that attribute. Select a choice by clicking with the mouse, and then click the "OK" button. All of the selected objects will be changed to the new setting.

The CHANGE OBJECT command appears in the same submenu with the CHANGE FONT and CHANGE TEXT commands.

This action can be reversed by using the UNDO command.

CHANGE FONT

CHANGE FONT assigns a different font (typeface) to the selected text objects in your drawing.

Procedure:

1. Activate the CHANGE FONT command by selecting "Change..." from the **Edit** menu, then select "Font" from the submenu.

2. Select one or more text object(s) by clicking the left mouse button on them. You can select and unselect as many text objects as you want by repetitive clicking. The command line will keep you informed as objects are selected and unselected.
3. **To stop selecting objects**, press the <ESC> key, or click the right mouse button. The Open File dialog box appears, showing a list of font files.
4. Select the font you want, then click the "Open" button. All of the selected text objects are changed to the selected font.

Here is a list of the fonts that are included with PatternMaker:

Bold.chr	<i>This is BOLD.CHR</i>
Euro.chr	<i>This is EURO.CHR</i>
Goth.chr	<i>This is GOTH.CHR</i>
Lcom.chr	<i>This is LCOM.CHR</i>
Sans.chr	<i>This is SANS.CHR</i>
Scri.chr	<i>This is SCRIB.CHR</i>
Simp.chr	<i>This is SIMP.CHR</i>
Trip.chr	<i>This is TRIP.CHR</i>
Tscr.chr	<i>This is TSCR.CHR</i>

Figure 21: PatternMaker font samples

This action can be reversed by using the UNDO command.

CHANGE TEXT

This command allows you to change the size, rotation, or the text itself in a text object.

Procedure:

1. Activate the command by selecting "Change" from the **Edit** menu, then select "Text" from the submenu.
2. Select a text object by clicking on it with the left mouse button. Only one text object can be selected at a time.
3. **To stop selecting text objects**, press the <ESC> key or click the right mouse button. The "Text Info" dialog box appears.

4. Enter a new size or rotation angle, or new words for the text itself. The size is the height of the letters in inches. The angle is the number of degrees the text is rotated counterclockwise from a normal position. For example, an angle of 90 degrees will make the text read upwards.
5. When finished, click the "OK" button to return to the drawing screen.

This action can be reversed by using the UNDO command.

ERASE

The ERASE command erases one or more objects.

Procedure:

1. Activate the ERASE Command by clicking on the Erase icon, or click "Erase" on the **Edit** menu.
2. Click on the object(s) you want to erase. As you click on objects, they will be highlighted. If you select something by accident, just click on it again to un-highlight it. You can select and unselect as many objects as you want by repetitive clicking.
3. **To stop selecting objects**, press the <ESC> key, or click the right mouse button. The object(s) you selected will be erased.

<p><i>Note: Although you can abort many commands by pressing the <ESC> key, the ERASE command cannot be aborted. If you press the <ESC> key while an object is highlighted, it will be erased. If you want to cancel the command, either un-select all objects and then press <ESC>, or go ahead and finish the command and then immediately use the UNDO command before doing anything else.</i></p>

This action can be reversed by using the UNDO command.

CLOSE OBJECT

The CLOSE OBJECT command changes an open polygon object to a closed object. A closed object is an object whose ends meet, such as a square or circle. An open object is one whose ends don't meet, such as an object shaped like the letter "L". Only closed objects can have fill patterns.

Procedure:

1. Activate the CLOSE OBJECT command by selecting it from the **Edit** menu.
2. Select one or more objects by clicking on them with the left mouse button. You can select and unselect as many objects as you want by repetitive clicking.
3. **To stop selecting objects**, press <ESC> or click the right mouse button.
4. PatternMaker will add one line segment to each of the selected objects, making each object a closed polygon.

To make a closed object open, use DELETE SEGMENT.

This action can be reversed by using the UNDO command.

CUT

The CUT command cuts one object along a line defined by a second object. The CUT command works with open or closed polygon objects. It does not work with text, dimension lines, or symbols.

Remember: This CUT command has nothing to do with the “cut and paste” features found in many Windows programs.

Procedure:

1. In order to use the CUT command, you must already have in your drawing the object you want to cut, and the object you will cut with (such as a line). You may need to move an existing object, or draw a completely new object. Do this first, before continuing with this command.

Hint: Sometimes you will cut an object with a pre-existing object. More often, you will draw a new object to serve as the cutting line. Do the cut, then use ERASE to get rid of the cutting line and the piece(s) you don't want.

2. When you are ready to cut, activate the CUT command by clicking on the Cut icon, or select “Cut” from the **Edit** menu. The prompt on the command line will say: Select object to cut:
3. Click on the object you want to cut. In the CUT function you can only select one object at a time, so if you click on a second object, it will replace the first as the object that is highlighted.
4. **When you have the correct object selected**, click the right mouse button, or press the <ESC> key. The command line will say: Select object to cut with:
5. Select the object that will form the cutting line. This is like a cookie cutter, or like the line the scissors follow when cutting the first object.
6. After you select the second object, click the right mouse button or press the <ESC> key. The first object will be cut by the second. Nothing will appear to have changed in the drawing, because the objects do not move. However, if you apply a command such as MOVE or ERASE on one of the pieces, you will notice the cut objects. If you're sure nothing happened, it may be because you selected objects that don't overlap. Use MOVE, MOVE VERTEX or ADD VERTEX to give your objects some overlap.

Note on CUT and JOIN: Unlike many CAD programs, PatternMaker thinks of objects as shapes with an inside and an outside. Therefore, if you try to use CUT or JOIN on objects that overlap themselves, or cross over themselves, PatternMaker may be confused because it doesn't know which is inside and which is outside! If you get a strange result, use the UNDO command. Then use the ID POINT command to see where the vertices of your objects really are. You can fix them with the MOVE VERTEX command.

If you cut apart an object containing grading arrows, PatternMaker may add arrows to the pieces so they will still grade the same.

This action can be reversed by using the UNDO command.

JOIN

The JOIN command merges two overlapping polygon objects together into one object. With closed objects, this is like taping two pieces of paper together. With open objects, it joins them end-to-end. The layer, color, etc. of the resulting object will be those of the first object. This command will not work correctly if the objects cross themselves or do not intersect.

Procedure:

1. Activate the JOIN command by clicking the Join icon, or select "Join" from the **Edit** menu. The prompt on the command line says `Select first object to join:`
2. Select one polygon object by clicking on it with the left mouse button. Only one object can be selected at a time, so if you click on a second object, the first object will be unselected.
3. **To stop selecting objects**, press the <ESC> key, or click the right mouse button. The prompt `Select second object to join:` will now appear on the command line.
4. Select the second object that you wish to join to the first. It must overlap the first object.
5. When you have selected the second object, press the <ESC> key, or click the right mouse button. The two objects will be joined.

The JOIN command is designed for use with polygon objects. It does not work with text or symbols. The JOIN command may have difficulty with objects that double back or cross over themselves, because PatternMaker doesn't know which is the inside.

This action can be reversed by using the UNDO command.

CHAPTER 11: THE POINT MENU

Add Vertex
Delete Vertex
Move Vertex
Rotate Vertex
Delete Segment
Corner Vertex
Round Vertex
Align X
Align Y
Set/Measure Dist.
Notch
Notch Direction

The **Point** menu contains editing commands that are used to move or modify points. These are different than the commands in the **Edit** menu because they apply only to vertices – you can change some of the vertices of an object and leave the rest unchanged.

Commands in the **Point** menu apply mostly to Polygon objects, but some, such as MOVE VERTEX, can be used on any object type.

<i>Note on Terminology: When this manual uses the word “vertex,” we mean one of the points that drawing objects are made up of. By “point,” we sometimes mean a vertex, and sometimes we mean a location in the drawing area. The context should make the meaning clear.</i>
--

ADD VERTEX

The ADD VERTEX command adds another vertex (point) to any polygon object. It does not work with text, dimensions or block insertions.

Procedure:

1. Activate the ADD VERTEX command by selecting "Add Vertex" from the **Point** menu. The prompt on the command line says `Select object to add vertex to:`
2. Select a segment of an object by clicking on it with the left mouse button. The selected segment will turn red. If you click on the wrong segment, just click again on the correct one.
3. When you have selected the segment you want, click the right mouse button, or press the <ESC> key. The prompt on the command line says `Location for new vertex:`
4. Click on the segment to indicate the position for the new point.

Tip: Try using various Snap modes to help in placing the new point. Use Snap to Nearest or Snap to Measured Distance if you want the new point to lie on an existing line or arc of the object; use Snap to Midpoint to place a point exactly halfway between two others.

1. After you click to locate the point, a dialog box will ask you for a notch type. If you don't want the new point drawn as a notch, the default is "None."

This action can be reversed by using the UNDO command.

DELETE VERTEX

The Delete Vertex command removes vertices (points) from an object(s). If the object has only one vertex, the object will be deleted.

Procedure:

1. Activate the DELETE VERTEX command by selecting it from the **Point** menu.
2. Select the points you want to delete by clicking on them with the left mouse button. You can select and unselect as many points as you want by repetitive clicking. They don't all have to be on the same object. Points will turn red as they are selected. If you accidentally click on the wrong point, just click on it again to unselect it.
3. **To stop selecting points**, press <ESC> or click the right mouse button. The selected point(s) will be deleted.

This action can be reversed using the UNDO command.

MOVE VERTEX

The MOVE VERTEX command moves one or more points of your objects.

Procedure:

1. Activate the MOVE VERTEX command by selecting "Move Vertex" from the **Point** menu. The prompt on the command line says `Select point(s), ? for help, <esc>=done:`
2. Select the point(s) you want to move by clicking on them with the left mouse button. Points will turn red as they are selected. If you accidentally click on the wrong point, just click on it again to unselect it.
3. **To stop selecting points**, click the right mouse button, or press the <ESC> key. The prompt on the command line says `Base point?`
4. The base point is like the "handle" you will use to pick up and move the points. Click somewhere near the selected point(s) to indicate the base point.
5. As you move the mouse around, you will see the selected points moving, also. Click the left mouse button to "drop" the point(s) at the destination, or click the right mouse button to cancel the command.

<p>Hint: You can use coordinates to move the points with more accuracy than you can achieve with the mouse. See Using Typed Coordinates, page 16, for more details.</p>

This action can be reversed by using the UNDO command.

ROTATE VERTEX

The ROTATE VERTEX command rotates one or more points around a "center point". You can use ROTATE VERTEX to rotate some of the points in an object while leaving the rest where they are. This is especially useful for rotating darts.

Procedure:

1. Activate the ROTATE VERTEX command by selecting it from the **Point** menu.

2. Select the point(s) you want to rotate by clicking on them with the left mouse button. Points will turn red as they are selected. If you accidentally click on the wrong point, just click on it again to unselect it.
3. **To stop selecting points**, click the right mouse button, or press the <ESC> key. The prompt on the command line says `Rotate about what point?`
4. Click on a point the others will be rotated around. The prompt on the command line says `Rotation (angle or base of rotation):`
5. You can enter the rotation angle in one of three ways:
 - *Angle:* Type in the number of degrees you want to rotate the object(s). The selected points will rotate counterclockwise (left) that many degrees. To rotate the points 90 degrees, type 90 and press <ENTER>. To go 90 degrees clockwise (right), type 270 and press <ENTER>. (There's no cursor on the command line, and you don't have to click there – just type the numbers.) After you press <ENTER>, the points rotate, and you are done with the command.
 - *Base point and end point:* Click to enter two points. The angle of rotation is the angle between the two points. Two cyan (bluish) lines appear to indicate the angle. After you click on the base point, you can watch the selected points move as you move the mouse around. Click the left mouse button to place the points in the new position and complete the command.
 - *Base point and distance:* Enter a point, then type in a number. PatternMaker calculates a rotation angle such that the selected point moves the specified distance. After you type the number and press <ENTER>, the points rotate, and you are done with the command.

You don't have to select the above choices from a list. Just start entering the information and PatternMaker will figure out which method you are using.

This command can be reversed by using the UNDO command.

DELETE SEGMENT

The DELETE SEGMENT command will remove a line or arc segment from a polygon object. If it is a closed polygon, this will make it an open polygon. If it is already open, this will remove a segment from one end, or break it into two objects.

Procedure:

1. Activate the DELETE SEGMENT command by selecting it from the **Point** menu. The prompt on the command line says `Select segment to delete:`
2. Click on a segment to remove. With this command you can only select one segment at a time, so if you click on a second segment, it replaces the first.
3. When you have selected the correct segment, press <ESC> or click the right mouse button. The selected segment will be removed.

This action can be reversed with the UNDO command.

CORNER VERTEX

The CORNER VERTEX command converts an arc control point of a polygon object to an ordinary (line) point. This changes the curved segment to two line segments joined by a common corner.

Procedure:

1. Activate the CORNER VERTEX command by selecting it from the **Point** menu. The prompt on the command line says `Select arc corner point to straighten:`
2. Select an arc control point by clicking on it with the left mouse button. The arc control points appear in green. (Use <F5> to turn on the points.) With this command you can only select one point at a time, so if you click on a second point, it replaces the first.
3. When you have selected the point you want, click the right mouse button, or press the <ESC> key. The point you selected will be converted from a curve to a corner.

The CORNER VERTEX command may be reversed with the ROUND VERTEX command.

ROUND VERTEX

The ROUND VERTEX command converts a Line vertex of a polygon object to an arc corner point. This changes the corner to a curve. ROUND VERTEX will not convert a vertex if the resulting object would be illegal. For instance, an object can't have two adjacent arc control points.

If you want to convert a single straight line segment into a curve, add a point first. You need three points for a curve.

Procedure:

1. Activate the ROUND VERTEX command by selecting it from the **Point** menu. The prompt on the command line says `Select corner to convert to curve:`
2. Select the point you want by clicking on it with the left mouse button. With this command you can only select one point at a time, so if you click on a second point, it replaces the first.
3. When you have selected the point you want, click the right mouse button, or press the <ESC> key. The corner point you selected will be converted to an arc control (round) point.

The ROUND VERTEX command may be reversed with the CORNER VERTEX command, which converts individual arc control points back to Line points.

ALIGN-X

The ALIGN-X command sets the X coordinates of two or more points to the same value. This puts the points on a single vertical line. Use this to line up points, or to tidy up vertical lines. ALIGN-X works with all types of points, including text, insertion, and dimension objects.

Procedure:

1. Activate the ALIGN-X command by clicking on the Align-X icon, or select "Align-X" from the Point menu. The prompt on the command line says `Align on vertical line with what point?`
2. Select one point that the others will be aligned with. You can only select one point at a time, so if you click on a second, it replaces the first.
3. **When you have the correct point selected**, press <ESC> or click the right mouse button. The prompt on the command line says `Select points to align:`
4. Select one or more additional points by clicking on them with the left mouse button. You can select as many points as you want by repetitive clicking.
5. **To stop selecting points**, press <ESC> or click the right mouse button. The selected points will be aligned on a vertical line with the first point.

This action can be reversed with the UNDO command.

ALIGN-Y

The ALIGN-Y command sets the Y coordinates of two or more points to the same value. This puts the points on a single horizontal line. Use this to line up points, or to tidy up horizontal lines. ALIGN-Y works with all types of points, including text, insertion, and dimension objects.

Procedure:

1. Activate the ALIGN-Y command by clicking on the Align-Y icon, or select "Align-Y" from the Point menu. The prompt on the command line says `Align on horizontal line with what point?`
2. Select one point that the others will be aligned with. You can only select one point at a time, so if you click on a second, it replaces the first.
3. **When you have the correct point selected**, press <ESC> or click the right mouse button. The prompt on the command line says `Select points to align:`
4. Select one or more additional points by clicking on them with the left mouse button. You can select as many points as you want by repetitive clicking.
5. **To stop selecting points**, press <ESC> or click the right mouse button. The selected points will be aligned on a horizontal line with the first point.

This action can be reversed with the UNDO command.

SET/MEASURE DISTANCE (DIST)

Measures and adjusts the length of a section of a polygon object. Use this command to check the lengths of armscyes and other curves.

Procedure:

1. Activate the DIST command by selecting "Set/Measure Distance" from the Point menu. The prompt on the command line says `Select start of segment:`
2. Click on a point at one end of the segment you wish to measure. The point will turn red as it is selected. If you make a mistake, just click on a second point, and the first one will be unselected.
3. When you have selected the point you want, press <ESC> or click the right mouse button. The prompt on the command line says `Select end of segment:`
4. Click on a point at the other end of the segment you are measuring. The point will turn red as it is selected. If you make a mistake, just click on a second point, and the first one will be unselected.
5. When you have selected the point you want, press <ESC> or click the right mouse button. PatternMaker will highlight the object between the two points and ask you to verify that it is the correct segment. (The program needs to know whether to go clockwise or counter-clockwise.)
6. If it is the correct segment, click the "Yes" button. If not, click "No" and PatternMaker will highlight the object between the two points in the opposite direction. It will then repeat the verification message.
7. A dialog box appears, showing the current length of the selected section. If you want to change this length, type in a new number. PatternMaker will move the points that lie along the section to set the length to the value entered. The end points of the section will not be moved.

Do not use this command to make large changes (more than about ½ inch). Instead, use a command such as MOVE VERTEX to make larger changes, then use DIST to make fine adjustments.

This action can be reversed with the UNDO command.

NOTCH

The NOTCH command converts an existing vertex of an object to a notch mark. Notch marks are used to align pattern pieces when sewing them together, etc. A notch point appears differently on screen, but is handled like any other vertex of an object otherwise. Notice that the term "notch" covers several different notches, tabs, and buttonholes.

Procedure:

1. Activate the NOTCH command by selecting it from the Point menu.
2. Select the point you want to convert to a notch by clicking on it with the left mouse button. You can select as many points as you want by repetitive clicking. If you make a mistake, click on the point again to unselect it.
3. **To stop selecting points**, press <ESC> or click the right mouse button. A dialog box appears, offering you a list of notch types:
 - Notch**
 - Double Notch**
 - Tab**
 - Wide Tab**
 - Buttonhole**
4. Select the notch type you want, and click the "OK" button. All the points you selected will be converted to this type of notch.

The "Buttonhole" type lets you draw a whole row of buttonholes as a single object. This makes them much easier to grade and work with.

If you want to place a notch where your object does not already have a vertex, you must use ADD VERTEX to place one there.

This action can be reversed by using the UNDO command.

NOTCH DIR

The NOTCH DIRECTION command reverses the direction of the selected notch points. Normally, PatternMaker draws notches pointing to the inside of an object, and tabs on the outside. If the computer becomes confused and draws them backwards, or if you just prefer to have them drawn the other way, use this command to reverse them.

Procedure:

1. Activate the NOTCH DIR command by selecting "Notch Direction" from the Point menu. The prompt on the command line says `Select point(s):`
2. Select the notch(es) you want to reverse by clicking on them with the left mouse button. You can select and unselect as many notches as you want by repetitive clicking.
3. **To stop selecting notches**, press <ESC> or click the right mouse button. The selected notches will be reversed.

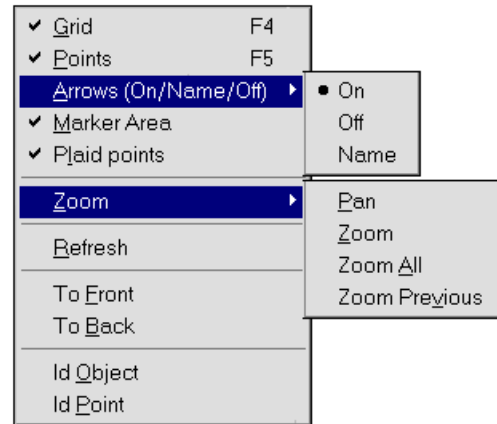
This action can be reversed with the UNDO command.

CHAPTER 12: THE VIEW MENU

The View menu contains all the commands that have to do with what you see in your drawing, and how you see things.

Many elements of the PatternMaker environment can be turned off and on as needed. These elements are described below.

The particular menu items you see will depend on which version of PatternMaker you are using. Not all commands are available in all versions.



GRID (TOGGLE GRID)

The TOGGLE GRID command turns the grid on and off.

To turn the grid on or off, select "Grid" from the **View** menu. A check mark appears in front of the menu item if the grid is turned on. You can also use the shortcut key <F4> for this command.

To change the grid spacing, use the GRID command on the **Settings** menu.

POINTS (SHOW VERTEX)

The SHOW VERTEX command shows or hides all the vertices (points) in the drawing. **Points** are represented by an "X." Corner points are shown in green, and arc points are shown in blue.

If there are two points at the same location the Xs cancel each other out, and no "X" appears at that location.

To turn the points on or off, select "Points" from the **View** menu. A check mark appears in front of the menu item if the grid is turned on. You can also use the shortcut key <F5> for this command.

ARROWS ON/NAME/OFF (TOGGLE ARROWS)

(Expert/Marker Versions only)

TOGGLE ARROWS shows or hides the grading arrows and their names. You can also use the shortcut key <F7> for this command.

There are three setting combinations:

1. ON: Arrows on (visible) and arrow names off (not visible). This is the default setting.

2. OFF: Arrows off and arrow names off .
3. NAME: Arrows on and arrow names on

Repeatedly selecting the TOGGLE ARROWS command toggles arrow visibility between the three choices.

MARKER AREA

(Marker version only)

TOGGLE MARKER AREA shows or hides the marker area.

To turn the marker area on or off, select "Marker Area" from the **View** menu. A check mark appears in front of the menu item if the marker area is turned on.

To change the marker area settings, use SET MARKER AREA on the **Marker** menu.

PLAID POINTS (TOGGLE PLAID)

(Marker version only)

TOGGLE PLAID POINTS shows or hides the plaid points for your marker pieces.

To turn the plaid points on or off, select "Plaid Points" from the **View** menu. A check mark appears in front of the menu item if the plaid points are turned on.

PAN

PAN moves your point of view around in a drawing, moving the center of the drawing to a new point without changing the scale. You can use the arrow keys to pan up/down/left/right. You can use the <F9> key to pan so that the mouse location is at the center of the screen. For the digitizer, this works even if the digitizer cursor is off the screen.

The various pan keys and icons can be used at any time, even if you are in the middle of another command.

ZOOM

The ZOOM command changes the scale of your drawing on screen. PatternMaker lets you view your drawing at virtually any scale, and Zoom has many options to select the scale you want.

Using Zoom will not change the actual size of your drawing, which is the size it prints out on paper.

Quick Zoom:

To see the entire drawing, press the <END> key. To zoom in quickly, press the <F2> key. To zoom out, press <F1>. To zoom to a specific area, put the mouse cursor on the point you want to see and press the <F3> key.

Zoom Menu Commands:

Procedure: Select the Zoom command. Then, follow any of the following options:

- scale:** Type "F". You will be prompted for a number and the scale will be set to that value. The larger the number, the larger objects will appear on your screen.
- window:** Enter option draws a rectangle. Click a point at one corner of the area you want to view (i.e. upper left). Next, click on the opposite corner of the area you want to view (i.e. lower right). The scale will be set so that this window fills the screen. This is the default option.
- all:** Type "A". The scale will be set so that all objects in the drawing are in view. (Objects on layers that are turned off are not considered). This has the same effect as pressing the <END> key.
- previous:** Type "P". Resets the scale to its last value.

The Zoom options can also be selected with icons or function keys.

ZOOM ALL

ZOOM ALL zooms in or out so all objects in the current drawing are visible. This is also an option under the ZOOM command. You can also use the shortcut key <END> for this command.

Procedure: Select "Zoom All" from the View/Zoom menu, or click the Zoom icon and select the All option. The scale will be changed and the picture redrawn so that all objects in the drawing can be seen.

Any objects on layers that are turned off will be invisible, and they will be ignored in calculating the extent of the drawing.

ZOOM PREVIOUS

ZOOM PREVIOUS undoes the last zoom or pan command. This command is also an option under the ZOOM command.

Procedure: Select "Zoom Previous" from the View/Zoom menu. The view of your drawing will be reset to its last scale and location.

REFRESH

The REFRESH command redraws the entire PatternMaker screen area. Occasionally Windows leaves stray marks in the PatternMaker window. Use this command to clear these up.

TO FRONT

The TO FRONT command moves one or more objects to the front of the drawing. Objects at the back of the drawing are drawn first, and objects at the front are drawn last. This is important when a filled object covers other objects or when using pen plotters. The pen plotter draws things in the order they appear in the drawing, so objects close together in space should be moved to the front (or back) together so the plotter pen doesn't waste time moving back and forth.

Procedure:

1. Activate the TO FRONT command by selecting it from the **View** menu.
2. Select one or more objects by clicking on them with the left mouse button. You can select and unselect as many objects as you want by repetitive clicking.
3. **To stop selecting objects**, press <ESC> or click the right mouse button. The object(s) you selected will be moved to the front of the drawing.

This action can be reversed by using the UNDO command.

TO BACK

The TO BACK command moves one or more objects to the back of the drawing. Objects at the back of the drawing are drawn first, and objects at the front are drawn last. This is important when a filled object covers other objects or when using pen plotters. The pen plotter draws things in the order they appear in the drawing, so objects close together in space should be moved to the back (or front) together so the plotter pen doesn't waste time moving back and forth.

Procedure:

1. Activate the TO BACK command by selecting it from the **View** menu.
2. Select one or more objects by clicking on them with the left mouse button. You can select and unselect as many objects as you want by repetitive clicking.
3. **To stop selecting objects**, press <ESC> or click the right mouse button. The object(s) you selected will be moved to the back of the drawing.

This action can be reversed by using the UNDO command.

ID OBJECT

ID OBJECT is a function to help you identify objects in your drawings. It gives you details about the selected object. This can be very useful in a complicated drawing where not all of this information is obvious.

Procedure:

1. Activate the ID OBJECT command by selecting it from the **View** menu.
2. Select an object by clicking on it with the left mouse button. For this command you can only select one object at a time, so if you click on a second object it replaces the first.

3. When you have the object selected, click the right mouse button, or press the <ESC> key. The following information is displayed on the command line:
 - Type of object (polygon, text, dimension, or symbol insertion)
 - Location of first point in X, Y coordinates
 - Number of points in object
 - Layer the object is on
 - Color of object
 - Name of object
 - Fill pattern for object
 - Text (if it is a Text object)

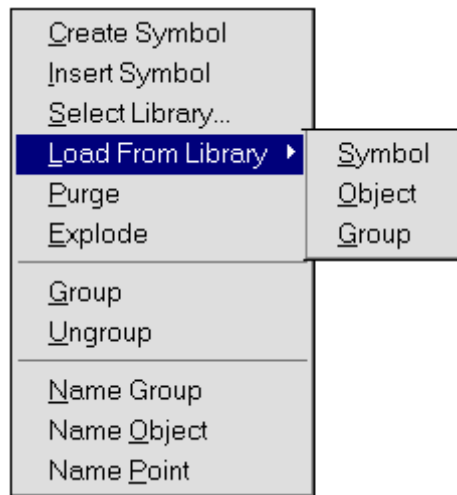
ID POINT

The ID POINT command helps you identify points in your drawings. It gives you essential information about the selected vertex (point).

Procedure:

1. Activate the ID POINT command by selecting it from the **View** menu.
2. Select a point by clicking on it with the left mouse button. For this command you can only select one point at a time, so if you click on a second point, it replaces the first. The points turn red as they are selected.
3. When you have selected the point you want, click the right mouse button, or press the <ESC> key. The following information is displayed on the command line:
 - Type of object (polygon, text, dimension, or symbol insertion)
 - Point Type:
 - L = Line segment
 - X = Start of arc
 - C = Corner point of arc
 - O = Open (last point of open polygon)
 - T = Text
 - I = Insertion point for symbol
 - D = Dimension point
 - **Number in object** For example, “4 of 5” means the 4th point of an object with 5 points.
 - **X,Y coordinates** The position of the point

CHAPTER 13: THE SYMBOL MENU



A symbol is a collection of one or more objects (polygons, text, etc.) with a single insertion point. Every symbol has a name and an associated image. When you insert a symbol, you are inserting the entire group of objects as a single image.

Symbols can be used for things like: grain line arrows, logos, punchholes, frequently used neckline or sleeve pattern pieces, and pattern marks such as apex points, fold lines, and buttonholes.

A symbol is saved in the drawing file in which it was created. Any PatternMaker file, therefore, can be used as a "library" of symbols.

CREATE SYMBOL

(Expert/Marker Versions only)

The CREATE SYMBOL command defines a symbol in your drawing. Every symbol has a name and an associated image. Nothing appears when you define a symbol. Once you have defined a symbol, you can use INSERT SYMBOL to insert copies in your drawing. You can also create symbol libraries, and you can import symbols from a symbol library or from another drawing.

Procedure:

1. Draw what you want the symbol to look like, using the various drawing commands.
2. Select "Create Symbol" from the **Symbol** menu. You will see the question Name of new symbol? On the command line.
3. The symbol name box will appear. On the left are the names of existing symbols. If you choose one of these, that existing symbol will be replaced with the new symbol you have drawn. If you type a new name in the space on the right, that will be the name of the new symbol. When you have chosen a name, click the "OK" button.
4. Select all the objects that you want to have in this symbol by clicking on them with the left mouse button.
5. **To stop selecting objects**, press <ESC> or click the right mouse button. The prompt Insertion point? will appear on the command line.
6. The insertion point is the point that will be used to locate the symbol when you insert it into your drawing. This can be anywhere, but make it someplace logical such as a corner of one of the objects. When you click to indicate this point, nothing will appear different in the drawing, but the symbol will be created and will be available to add to your drawing with the INSERT SYMBOL command.

To redefine a symbol: simply create the symbol again, with the same name. All insertions of that symbol will be updated automatically.

INSERT SYMBOL

The INSERT SYMBOL command is used to put copies of a symbol in the drawing. Before you can use this command you must have a library of symbols defined (use CREATE SYMBOL) and you must have loaded the library containing the symbols (use SELECT LIBRARY and LOAD SYMBOL).

Procedure:

1. Activate the INSERT SYMBOL command by selecting it from the **Symbol** menu. If the command is greyed out, it means you have not loaded any symbols.
2. A dialog box will come up with a list of available symbols. Select the one you want to use, and then click the "OK" button.
3. As you move the mouse around, you will see the symbol "attached" to the mouse cursor. When you have the symbol in the position you want, click the left mouse button to insert the symbol. You can also specify where the symbol should be inserted by typing a position in coordinate format.

To insert the same symbol again, just click where you want it to be. To insert a different symbol, select the command again from the **Symbol** menu.

Symbols can be broken into component pieces using EXPLODE.

SELECT LIBRARY

The SELECT LIBRARY command allows you to select a library file. Once you have selected a library, you can use LOAD SYMBOL, LOAD OBJECT, or LOAD GROUP to load symbols, objects or groups from it.

PatternMaker designates one file at a time as the current library. If you open another library, the first one is closed.

Procedure:

1. Choose "Select Library" from the **Symbol** menu. (If a library is already open, a message box appears, asking you to confirm closing it before opening the new one.)
2. The Open File dialog box appears. Select a file to use as the library. Any PatternMaker drawing file (.PAT format) can be used as a library.
3. Select a file and click the "Open" button. The selected library will be loaded.

Any PatternMaker drawing file (.PAT format) can be selected to use as a library, but in order to be used it must contain a defined symbol, a named object or a named group. It is wise to give your purpose-built library files descriptive names, such as "LIBRARY1.PAT".

LOAD SYMBOL

The LOAD SYMBOL command loads a symbol from a library. Once you have loaded a symbol, it will be available to use with the INSERT SYMBOL command.

Procedure:

1. If you have not already done so, use the SELECT LIBRARY command to select a library file.
2. Select "Load from Library" on the **Symbol** menu, and then select "Symbol" from the submenu.
3. A dialog box will appear with a list of all symbol definitions in that file. Select a symbol from the list and click the "OK" button.
4. The symbol is now ready for use, stored in the computer's memory.

Use INSERT SYMBOL to place copies of the symbol in your drawing.

LOAD OBJECT

The LOAD OBJECT command loads a named object from a library file.

Procedure:

1. If you have not already done so, use the SELECT LIBRARY command to select a library file.
2. Select "Load from Library" from the **Symbol** menu, then select "Object" from the submenu.
3. A dialog box will appear with a list of all named objects in that file. If there are no named objects in that file, an error message informs you of that, and you return to the drawing screen.
4. Select an object from the list and click the "OK" button.
5. As you move the mouse around, you will see the object "attached" to the mouse cursor. When you have the object in the position you want, click the left mouse button to insert it. You can also specify where the object should be inserted by typing a position in coordinate format.

This action *cannot* be reversed with the UNDO command.

LOAD GROUP

The LOAD GROUP command loads a named group from a library file.

Procedure:

1. If you have not already done so, use the SELECT LIBRARY command to select a library file.
2. Select "Load from Library" from the **Symbol** menu, then select "Group" from the submenu.
3. A dialog box will appear with a list of all named groups in that file. If there are no named groups in the file, an error message informs you of that, and you return to the drawing screen.
4. Select an object from the list and click the "OK" button.
5. As you move the mouse around, you will see the group "attached" to the mouse cursor. When you have the group in the position you want, click the left mouse button to insert it. You can also specify where the group should be inserted by typing a position in coordinate format.

This action *cannot* be reversed with the UNDO command.

PURGE

The PURGE command eliminates all unused symbols from the computer's memory. Each loaded symbol takes up memory whether it is used in the drawing or not. The PURGE command eliminates the unused symbols.

THE SYMBOLS ARE NOT DELETED FROM THE LIBRARY FILE. They are only removed from the computer's temporary memory.

Procedure:

Select "Purge" from the **Symbol** menu. The program will go through the list of symbols stored in this drawing, and eliminate any that don't have an insertion somewhere in the drawing.

EXPLODE

The EXPLODE command takes a symbol insertion or polygon object and breaks it into its component parts (lines, arcs, and points). You can rejoin them with the JOIN command. An insertion will be replaced by the symbol's component objects.

The EXPLODE command can be used on either Polygon or Symbol Insertion objects. It has no effect on text or dimension objects.

Procedure:

1. Activate the EXPLODE command by clicking the Explode icon, or by selecting "Explode" from the **Symbol** menu.
2. Select the object(s) you want to explode by clicking on them with the left mouse button. You can select and unselect as many objects you want by repetitive clicking.
3. **To stop selecting objects**, press the <ESC> key, or click the right mouse button. The selected objects will be exploded.

GROUP

This command groups the selected objects together. Groups of objects are always selected together. Whenever a command asks you to select some objects, you can select the entire group by clicking the mouse on any object in the group. If you want to make sure several objects stay together when you move them, group them together.

Procedure:

1. Activate the GROUP command by selecting it from the **Symbol** menu.
2. Select the objects you want in the group by clicking on them with the left mouse button. You can select and unselect as many objects as you want by repetitive clicking.
3. **To stop selecting objects**, press the <ESC> key or click the right mouse button.

4. A dialog box appears, asking for a name for the group. You must give the group a name if you plan to load it with the **LOAD GROUP** command.
5. Type a name, and then click the "OK" button. The group is created.

You can select an existing Group as a member of a new group. This is called a nested group.

This action can be reversed with the **UNDO** command.

UNGROUP

This command breaks up a group into either its subgroups or individual objects.

Procedure:

1. Activate the **UNGROUP** command by selecting it from the **Symbol** menu.
2. Select the objects you want to ungroup by clicking the group with the left mouse button. You can only select one group at a time.
3. **When you have the correct group selected**, press the <ESC> key or click the right mouse button. The group will be broken up into either its subgroups or individual objects.

This action can be reversed with the **UNDO** command.

NAME GROUP

NAME GROUP assigns a name to the selected group. You have to give a name to a group before you can load it from a library file.

Procedure:

1. Activate the **NAME GROUP** command by selecting it from the **Symbol** menu.
2. Select the group you want to name by clicking on it with the left mouse button. You can only select one group at a time.
3. **When you have the correct group selected**, press the <ESC> key or click the right mouse button. A dialog box appears, asking for the name of the group.
4. Type a name for the group and then click the "OK" button.

NAME OBJECT

NAME OBJECT assigns a name to the selected object. You have to give a name to an object before you can load it from a library file.

Procedure:

1. Activate the **NAME OBJECT** command by selecting it from the **Symbol** menu.

2. Select the object you want to name by clicking on it with the left mouse button. You can only select one object at a time.
3. **When you have the correct object selected**, press the <ESC> key or click the right mouse button. A dialog box appears, asking for the name of the object.
4. Type a name for the object and then click the "OK" button.

The name of the object is displayed when you use the ID OBJECT command.

NAME POINT

NAME POINT assigns a name to the selected point.

Procedure:

1. Activate the NAME POINT command by selecting it from the **Symbol** menu.
2. Select the point you want to name by clicking on it with the left mouse button. You can only select one point at a time.
3. **When you have the correct point selected**, press the <ESC> key or click the right mouse button. A dialog box appears, asking for the name of the point.
4. Type a name for the point and then click the "OK" button.

The name of the point is displayed when you use the ID POINT command.

CHAPTER 14: THE SETTINGS MENU

SNAP

The SNAP command sets the snap mode. When Snap is on, a “X” will follow the mouse and show the nearest snap point. Snap is used in combination with LINE, POLY, and other drawing commands, as well as editing commands. Whenever you click the mouse and there is a snap point near it, that point is entered instead of the actual mouse location. This lets you make more precise inputs.

You can select a specific snap mode at any time by using the hot keys (<F1> to <F9>) or by clicking an icon. You can activate or change Snap Modes even during another command.

If you select "Snap" from the **Settings** menu or by using the <F6> shortcut key, you are presented with the following choices:

Option	What it does	Hot Key (hold <CTRL> key down)
<i>none</i>	Turn off Snap	<CTRL>+<F1>
<i>grid</i>	Snap to grid points	<CTRL>+<F2>
<i>end point</i>	Snap to endpoints or vertices	<CTRL>+<F3>
<i>nearest</i>	Snap to nearest point on object	<CTRL>+<F4>
<i>ortho</i>	Draw vertical or horizontal only	<CTRL>+<F5>
<i>midpoint</i>	Snap to midpoints of lines	<CTRL>+<F6>
<i>intersection</i>	Snap to intersections of lines	<CTRL>+<F7>
<i>offset</i>	Snap to offset from objects	<CTRL>+<F8>
<i>measured distance</i>	Along an object from a point	<CTRL>+<F9>

A Snap Mode stays in effect until you change it again.

UNITS

This command selects the units of measurement, either inches or centimeters. If you select either of the metric displays (meters or centimeters), all PatternMaker input and output will be in centimeters. If you select any of the English units, all input and output will be in inches.

When you change this setting, all Dimension objects are redrawn with the new units, and the grid (if you're using it) is resized.

To change the Unit settings, select "Units" from the **Settings** menu, or click the mouse coordinates box on the Status Bar.

Choose from the following options:

Option	Description	Example
inches, no fractions	The measurement is in inches, fractions are in decimal form. No " symbol is displayed	18.375
inches	Measurement is in inches. Fractions are in decimal form	18.375"
feet + inches	Fractional inches are written as fractions	1' 6 - 3/8"
meters	The measurement is in meters	1.462 M
centimeters	The measurement is in centimeters	146.2 cm

When you start PatternMaker, it will automatically use the units that you last selected. To see which units are in use, look at the X-Y coordinates in the Status Bar.

GRID

The GRID command sets the grid spacing.

Procedure:

1. Select "Grid" from the **Settings** menu. A dialog box appears, showing the current spacing between grid points.
2. If you want to keep this setting, click the "Cancel" button. If you want a different setting, type a new number (in inches) and then click the "OK" button.
3. You will be returned to the drawing screen. If the grid was off, it will be turned on.

LAYER

The LAYER command is used to view or modify the layer list. Every object is on a layer, and only objects on layers that are turned ON can be seen. A drawing can have up to 24 layers.

Procedure:

1. Activate the Layer command by selecting "Set Defaults" from the **Settings** menu, then select "Layer" from the submenu.
2. A window appears listing information for all layers. You can also reach this window by clicking the "Layer" field in the Status bar.
3. The window contains the following information:
 - Current layer:** Indicated with an asterisk. All new objects are drawn on the current layer. Click the mouse by a different layer to set a new current layer.
 - Layer name:** Click on the name, then type in a new name for the layer. By default, layers are named "Layer0," "Layer1," etc.
 - Layer color:** Click on the color swatch, then enter a new default color for the layer. These settings apply only to the current drawing.
 - Layer on/off:** Click on the word "on" or "off" to turn layers on and off.

Cut Ratio: (Marker Version only) Type a number in the appropriate box, or use the left mouse button to increase the number, and the right mouse button to decrease it. (See CUT RATIO on the **Marker** menu.)

Reset: Set all layers back to their original colors and names.

4. Click on any item with the mouse to change or set it. When finished, click the "OK" button.
5. After the dialog box closes, the drawing will be updated to reflect the new settings.

COLOR

This command selects a new default color in which objects will be drawn. All subsequent objects will be drawn with this color. This is not the same as changing the default color for the current layer.

Procedure:

1. Activate the COLOR command by selecting "Set Defaults" from the **Settings** menu and then selecting "Color." You can also open the Color window by clicking the Color icon, or by clicking the "Color" field in the Status bar.
2. The dialog box that appears has a narrow color swatch at the top. This shows you the current drawing color.
3. Below the current color swatch are 16 smaller color swatches. These show the available colors. The color in the first smaller box is called "UseLayerColor." This is the default color of the current layer. What you see in this box changes, depending on what layer you are currently on. If you select this color, new objects will be drawn in the default color of the current layer (see LAYER to set the default color).
4. If you choose a color other than "UseLayerColor," the color you choose will override the default layer color. Any object that you draw after making this change will be in the color you selected, regardless of the layer's default color.
5. Make your color selection and then click the "OK" button to return to the drawing screen.

PATTERN

This command selects a new fill pattern for polygon objects. All subsequent objects will be filled with this pattern.

Procedure:

1. Activate the PATTERN command by selecting "Set Defaults" from the **Settings** menu and then selecting "Pattern." You can also open the Pattern window by clicking the Pattern icon, or by clicking the "Pattern" field in the Status bar.
2. The dialog box that appears shows a narrow pattern swatch at the top. This shows you the current fill pattern. (The default fill pattern is EMPTY_FILL which draws unfilled objects.)
3. Below the current pattern swatch are 8 smaller pattern swatches. These show the available fill patterns.

4. Make a selection and then click the "OK" button to return to the drawing screen. The new fill pattern is applied to objects drawn after you make the change.

To change the fill pattern on an object which you have already drawn, use the CHANGE command on the **Edit** menu.

Note: Most printers don't handle filled objects well. Almost all of your pattern work will be done with "EMPTY_FILL".

SET LINE

The SET LINE command sets the current linestyle to solid line, dotted, dashed etc. Every new object you draw will be drawn in the new linestyle.

Procedure:

1. Activate the SET LINE command by selecting "Set Defaults" from the **Settings** menu and then selecting "Line." You can also open the Line Type window by clicking the "Line Type" field in the Status bar.
2. The dialog box that appears shows a sample line type at the top. This shows you the current line type. (The default is a solid line.)
3. Below the current pattern swatch are 5 smaller line samples. These show the available line types.
4. Make a selection and then click the "OK" button to return to the drawing screen. The new line type is applied to objects drawn after you make the change.

If you want to change the linestyle of an object which you have already drawn, use the CHANGE command.

The way each linestyle looks when you print it depends on the printer you use.

FONT

The FONT command is used to select a new font style (typeface) for use in drawing text objects. The default is SIMP.CHR

Procedure:

1. Activate the FONT command by selecting "Set Defaults" from the **Settings** menu and then selecting "Font."
2. An Open File dialog box appears, listing the available fonts. Font files end in .CHR. Note that PatternMaker does not use the Windows TrueType fonts. The program comes with a set of stroked fonts, which are copied into your PatternMaker directory at the time of installation.
3. Select a font file (see list below) and then click the "OK" button to return to the drawing screen. Text objects that you create after you change fonts will be drawn in the new font.

Note: If you use fancy text fonts, it will take longer for your computer to redraw the screen.

If you want to change the font of an existing Text object, use the CHANGE FONT command.

Here is a list of the fonts that are included with PatternMaker:

Bold.chr	This is BOLD.CHR
Euro.chr	This is EURO.CHR
Goth.chr	This is GOTH.CHR
Lcom.chr	This is LCOM.CHR
Sans.chr	This is SANS.CHR
Scri.chr	<i>This is SCRIB.CHR</i>
Simp.chr	This is SIMP.CHR
Trip.chr	This is TRIP.CHR
Tscr.chr	<i>This is TSCR.CHR</i>

Figure 22: PatternMaker font samples

DIM SETTINGS

The DIM SETTINGS command controls how dimension objects are drawn.

Procedure:

1. Access the DIM SETTINGS dialog box by selecting "Set Defaults" from the **Settings** menu and then selecting "Dim" from the submenu.
2. A dialog box appears. The settings are:

Text Size	The size of the numbers
Line Offset	The distance between the dimension lines and the actual points being measured, to keep the dimension line from getting in the way.
Arrow Size	The size of the arrowheads.
1. Enter the values you want in the dialog box, and then click the "OK" button. The changes you make apply to all existing Dim objects, as well as ones created after you make the change.

Note: The dimension text size also determines the size of the names of grading arrows.

When you change one of these settings, PatternMaker redraws all Dimension objects. Changing settings doesn't affect the actual dimension, just the way the dimension lines are displayed.

DIGITIZER/DRAW ALIGN

(Expert/Marker Versions only)

DRAW ALIGN sets the origin and scaling factor of your digitizer tablet visually. Use this command if you don't know the numeric value of the scaling factor. (Compare with CONFIGURE DIGITIZER, below.)

Procedure:

1. Activate the DRAW ALIGN command by selecting "Digitizer" from the **Settings** menu, then select "Draw Align" from the submenu.
2. Use your digitizer puck or pen to enter the beginning and ending points of a horizontal or vertical line on your digitizer.
3. Use the mouse (or typed coordinates) to enter the beginning and ending points of a line on the screen. Your two lines should either be both horizontal or both vertical.
4. The digitizer origin and the digitizer scaling factor are adjusted so that the two points on the digitizer correspond to the two points in the drawing.

Example: Suppose you have a scale drawing in which 1 inch equals twelve inches. Using DRAW ALIGN, click the digitizer mouse on two points one inch apart. Then enter the coordinates (0,0) and (12,0) in the drawing. The scale is now set so that when you trace from the paper, the results in PatternMaker are life size.

DIGITIZER/TOGGLE MODE

(Expert/Marker Versions only)

This command toggles the digitizer mode between absolute mode and mouse mode. In mouse mode, the digitizer works like a mouse. In absolute mode, the cursor is a plus (+) sign instead of an arrow and its position is the actual location of your digitizer device on the digitizer.

When using the digitizer to trace drawings, always use absolute mode. When selecting commands or icons, use mouse mode. When you are tracing an object, you will need to switch back and forth between modes quite often to select point options for the Poly command.

Procedure:

Switch from mouse mode to absolute mode in one of the following ways:

1. Press the <F8> key.
2. Select "Digitizer" from the **Settings** menu, then select "Toggle Mode" from the submenu.
3. (If you are in mouse mode): click on the Toggle Mode icon at the far right end of the Status Bar.

In addition, if you are in absolute mode (plus cursor) and if you have not changed the digitizer button assignments, you can click Button 1 on the digitizer mouse to switch modes.

DIGITIZER/SET ORIGIN

(Expert/Marker Versions only)

SET ORIGIN changes the origin of the digitizer tablet. Use this command when you are digitizing something that is too big to digitize all at once.

The origin is the coordinates, on the digitizer surface, of the point (0,0) in the drawing. For instance, if you enter X=5 and Y=5, then the point 5 inches right and 5 inches up from the lower left corner of the digitizer surface is the origin.

The default location for the lower left corner of the digitizer is at (0,0). If you change it, the digitizer area will correspond to a different area of the drawing.

Procedure: Input a point on the screen and then a point on the digitizer. It sets the digitizer origin so that the screen point matches the digitizer point.

Example: Suppose you are tracing from a paper pattern twice as big as your digitizer surface. Put the pattern on the digitizer and trace as much of it as you can. Then, move the paper. Use SET ORIGIN to make the digitizer's location correspond with the new position of the paper on the digitizer.

DIGITIZER/CONFIGURE DIGITIZER

(Expert/Marker Versions only)

CONFIGURE DIGITIZER lets you specify certain settings related to how your digitizer operates.

Assigning Commands to Buttons

This feature lets you assign any PatternMaker command or keyboard shortcut to a button on your digitizer.

Procedure:

1. Select "Digitizer" from the **Settings** menu, then select "Configure" from the submenu. The "Digitizer Configuration" dialog box opens (see Figure 23, below).
2. Begin with the field called "Digitizer Button." From the drop-down list, select the button you want to configure. After you select a button, the field called "Command" shows what command is assigned, if any.
3. To assign a new function, select the type of function in the "Active" group. Depending on which type you select, one of the drop-down lists to the left will be enabled. (The other three lists remain disabled.)
4. From the drop-down list, choose the command that you want to assign to the selected digitizer button.
5. **To save the change**, click the "Add" button.

- Repeat steps 1 through 4 as desired. When finished, click the “Okay” button to return to the drawing screen.

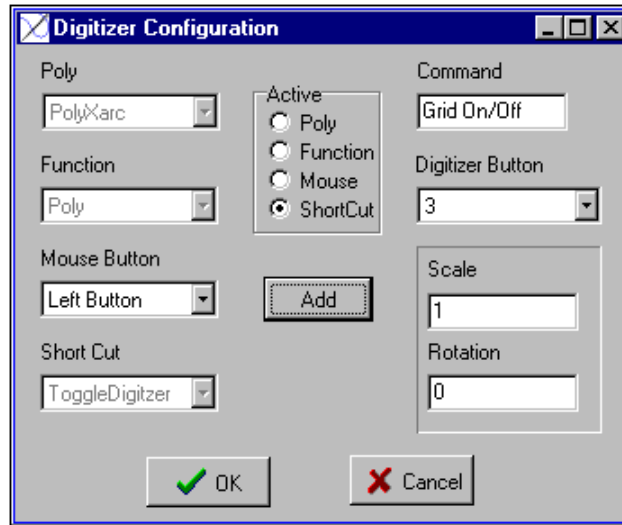


Figure 23: the Configure Digitizer window

Setting Scale/Rotation

This feature lets you specify the numerical value of the scale and rotation of the digitizer relative to the drawing. (Compare with DRAW ALIGN, above.)

Procedure:

- Select “Digitizer” from the **Settings** menu, then select “Configure” from the submenu. The “Digitizer Configuration” dialog box opens (see Figure 23, above).
- In the “Scale” field, enter the number of drawing inches per digitizer inch. For example, if you enter 2, then one inch on the digitizer tablet equals 2 inches in the drawing. If you enter 0.5, then one inch on the digitizer equals ½ inch in the drawing. If the object you are digitizing is life-size, leave the Scale set at “1.”
- In the “Rotation” field, enter a number representing how many degrees the object you are digitizing is rotated. For example, if a pattern piece is placed on the digitizer horizontally, but you want the drawing in PatternMaker to appear vertical, enter “90” or “-90” to rotate the object ¼ turn.

Note: If you have used the DRAW ALIGN command (above), the results of that alignment will appear in the Scale and/or Rotation fields. It is not necessary to use both DRAW ALIGN and CONFIGURE to set the rotation and/or scale.

REGISTER

PatternMaker uses a password system to restrict and unlock the features of the different versions. When you load the program, it runs for 30 days as the Home Version. At the end of the trial period, it will revert back to the Basic Version. You can register at any time to continue using the Home Version features.

Procedure:

1. Select "Register" from the **Settings** menu.
2. Enter your name in the **Name** field, then click the "Set Name" button. A code will appear in the field called **ID String**.
3. Contact PatternMaker Software (see note below) and quote the ID String.
4. You will be given a password, or "unlock code." Enter this code in the field called **Unlock Code**, then click the "Register" button.

Note: The password you receive is based on your ID String, which is entirely dependent on how you enter your name. Be sure to type your name exactly as you did when you generated your ID String, otherwise the password won't work.

5. You will see an acknowledgement that the program has been registered. When you click "OK," you will be returned to the drawing screen, and the Home Version features will be activated.

Note: Although you are welcome to contact us by phone for this process, we encourage contact by e-mail, in order to reduce the chance of error. Simply cut and paste the ID String from the Registration box into your e-mail message.

KEY STATUS

The KEY STATUS command opens a dialog box which displays information about your security key, if installed.

Depending on your individual arrangements with PatternMaker Software, your security key may require a password to be entered after a period of time. This password is available from PatternMaker Software. If you don't have the password available immediately, don't worry. The software will still work normally during the grace period.

SECTION SIX: ADVANCED FEATURES

CHAPTER 15: GRADING OVERVIEW

Grading is the process of taking a single pattern and using it to make a full set of different sizes. By hand, this is a slow process and it's hard to be accurate. With PatternMaker, you can grade an entire pattern with a single command, and the computer ensures that the results are accurate. PatternMaker also lets you define standard grading rules, save them in tables, and apply them to different patterns. For instance, you could create your own "Women's pants" grading rule and apply it to any women's pants pattern.

With the Home version you can use this command only if the pattern in question has been created with a higher version of PatternMaker and includes grading arrows. You must have PatternMaker Expert or Marker version to create and load grading information.

ESTABLISHING GRADING RULES

A grading rule tells PatternMaker how to make an item one size larger or smaller. For instance, a pants grading rule may say that the waist measurement is one inch larger for each successive size. In PatternMaker, a grading rule is defined by grading arrows. Each arrow tells PatternMaker where to move a certain point to create the next size. When it makes, saves, and reads grading tables, PatternMaker is really reading and copying grading arrows.

The various commands used in grading are found in the **Grade** menu. Here is the basic sequence of events in the grading process.

To Create a Grading Rule:

- Draw your pattern.
- Add grading arrows. Use the ADD ARROW command to put arrows on some of the points of your pattern pieces.
- Adjust and name the arrows. If your grade is different for different sizes, set the different grades now. Use the EDIT ARROW command.
- Add arrows to other objects, such as darts. Use the various arrow commands to apply the basic grading information to these secondary objects.
- The pattern is now ready to grade.

To Save a Grading Rule:

- Select the SAVE TABLE command.
- Select some objects with grading arrows. All arrows attached to the objects you select will be saved in the table. (You don't need to save everything in one table – if your pattern has both a blouse and pants, you might want to save the grading information in two separate files.)

- Select a file to save the table in. See Chapter 3: Getting Started for an explanation of selecting file names.
- Give the table a description or title.
- PatternMaker will create a grading table and save it in the file.

To Read a Grading Rule Into a Pattern:

- Open up a drawing with objects that need to be graded.
- Select the READ TABLE command.
- Select a grading table file.
- Place the arrows on the object(s). For each arrow in the table, PatternMaker tells you the name of the arrow and you tell it which point to add the arrow to. You can skip arrows that you don't need.
- The pattern is now ready for grading. All the grading information from the original pattern is in the new pattern. If you need to modify the grading rule for the new pattern, you can use the various Grading commands to edit the grading arrows.

To Grade a Pattern:

The Grade command is the only grading operation available in PatternMaker Home version.

- Open a drawing that contains grading arrows, or create grading arrows in your current drawing.
- Select the GRADE command.
- Select the objects to be graded. Anything you don't want more copies of, don't select.
- Enter the number of sizes to generate and the interval between the sizes. If you have size 10 and you want to create sizes 12, 14, and 16, you would enter 3 sizes and an interval of 2.
- PatternMaker draws the new objects. The objects for each new size are on a different layer (see Chapter 4: Layers, Symbols and Libraries).

Read Tutorial 8 for practice with grading.

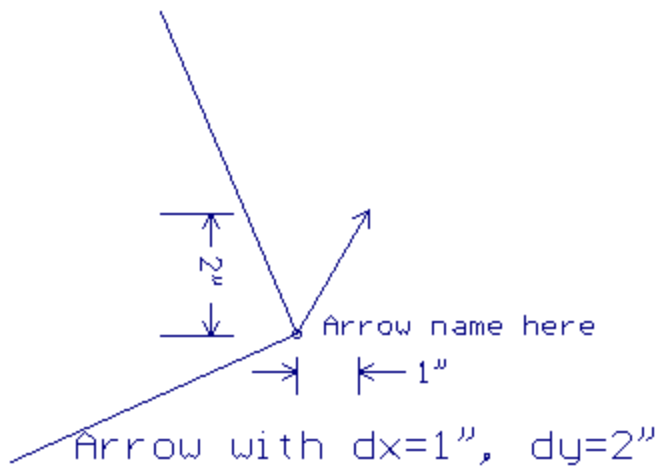
GRADING ARROWS

Grading arrows are the basis of PatternMaker's grading system. When you grade an object, you create a nest of larger (or smaller) objects. Each new object has the same number of points as the original, but they are in different places. A grading arrow tells PatternMaker where to put each point to make the next larger size.

Any vertex (point) of any type object can have an arrow. A point doesn't have to have an arrow, but you can't have an arrow without a point.

You can hide or show the arrows by pressing <F7>. There are three settings: hide arrows, show arrows without names, and show arrows with names. Hiding the arrows makes the program work faster.

This is what a close-up view of an arrow looks like:



Each arrow tells PatternMaker to move its point a certain amount in the X (horizontal) direction and a certain amount in the Y (vertical) direction. These are called the *dX* and *dY* values. A grading arrow has a *dX* value and a *dY* value for each size, and a name.

An arrow can have different *dX* and *dY* values for different layers. The arrow you see on screen shows the grade for the layer the object is on. If you grade the object for several sizes, the *dX* and *dY* values for each size in turn are used. If you change the object's layer with the Change command, its arrows will change size accordingly. Use the EDIT ARROW command (see Chapter 16: The GRADE Menu) to see all of an arrow's values.

Advanced Grading

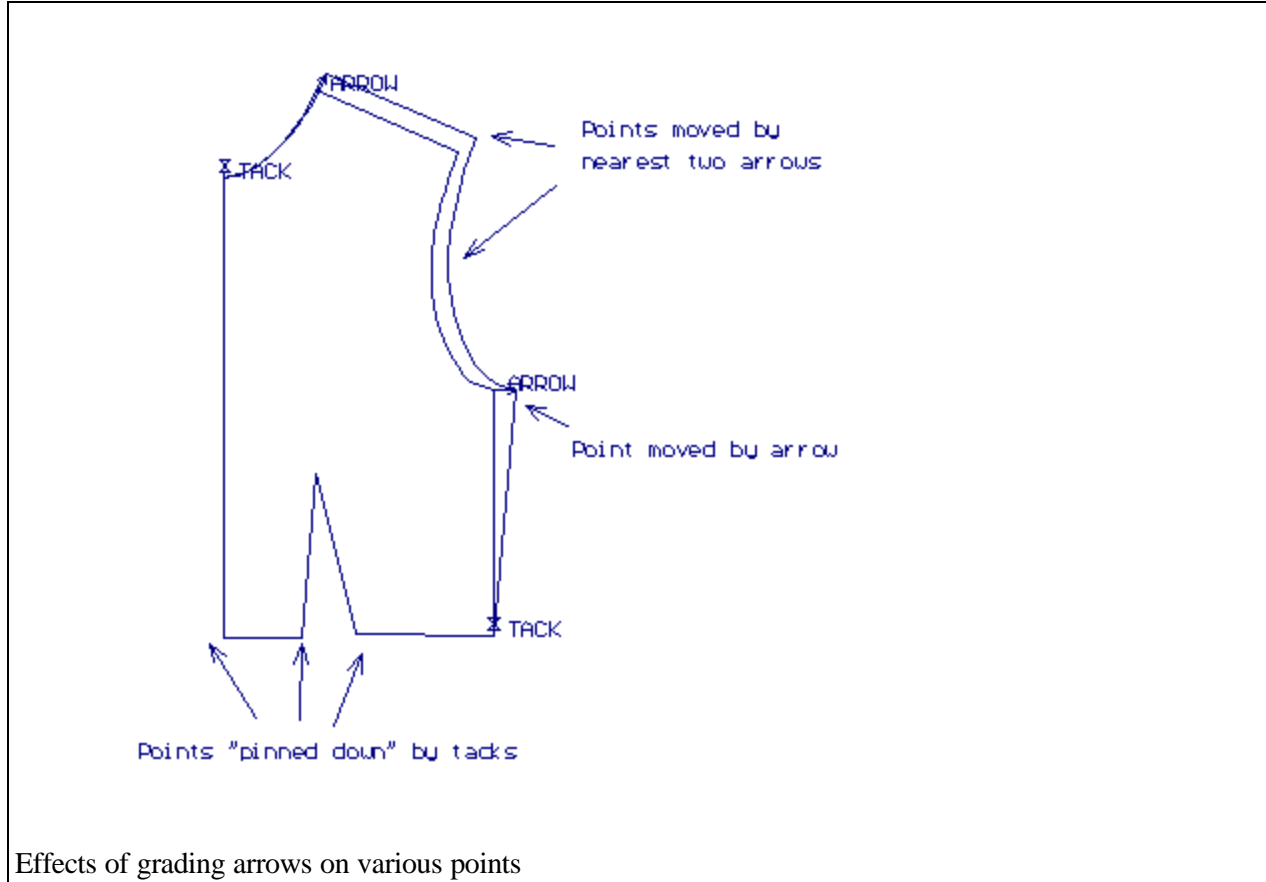
Your grading rule can specify a different grade for different size ranges. For instance, each size up to size 12 might be an inch larger in the waist than the previous size. Then each size larger than 12 might be 1 - ½ inches larger in the waist. Your grading rule can now have “breakpoints” at certain sizes where the grade changes. Use the EDIT ARROW command to view and set an arrow's breakpoints. If you want to keep grade without breaks, just set the *dX* and *dY* values for Layer 0 and leave the rest blank.

Tacks vs. Arrows

If an arrow has *dX* and *dY* values of 0 for the layer it is on, it is drawn as a tack. Tacks are drawn on the screen differently than arrows, but they work the same way. A tack tells PatternMaker not to move its point when you grade the object.

If a point doesn't have an arrow, PatternMaker works around the object point-by-point until it finds the nearest arrow in the clockwise direction, and the nearest arrow in the counterclockwise direction (see picture below). Then it uses these two arrows to calculate a position for the point by interpolation. What this means to you, the user, is that you only need to define arrows for a few points per object and PatternMaker will take care of the rest.

If an object has two tacks with some points between them that don't have arrows, the points without arrows will not move when you grade the object.



When you draw a pattern piece, you will typically draw it as several objects: the main piece, the grain line, darts, alignment marks, etc. When you grade, you have two choices: grade just the pieces you will cut out of the material, or grade everything. If you grade objects such as darts, you need to attach arrows to make them move to their new positions.

Things To Keep In Mind About Grading Arrows:

- If you grade an object with no arrows, the copy will be exactly the same as the original, and is drawn right on top of it. Do this if you need identical objects on different layers.
- If you grade an object with one arrow, the copy is moved but its size and shape don't change.
- If you grade an object with two arrows, the copy may be moved, rotated, or enlarged, but it will be the same shape as the original.
- If you grade an object with more than two arrows, it will change both size and shape.
- Grading arrows are saved when you save a drawing.

Hint: Use the INTERP ARROW command to add arrows to objects that need to "follow" other objects' grading arrows.

Hint: When you read a grading table, make sure the objects are oriented the same way as the objects in the original file. If you try to read a table for a vertical object into a horizontal object, or a mirror image, it won't work. Instead, rotate the objects into the same positions, add the arrows, and then rotate them back the way you want them.

. Hint: If you already have different-sized objects in your drawing but you don't know what the specific dX and dY values for your grading rule should be, you can create the arrows graphically. For example, you might place a size Medium piece on top of a size Small piece. Add arrows to the points of the Small piece with *ADD ARROW*. For the head of each arrow, use *Snap to End Point* to connect to the corresponding point of the Medium piece. This creates a grading rule you can save.

Hint: It's up to you, when you create the grading arrows, to define what a jump of one size means. For instance, if your pattern only comes in even sizes, you can set your arrows to grade from size 8 to size 10; from 10 to 12, etc. and name your layers "Size8," "Size10," "Size12"... To PatternMaker, the jump from size 10 to size 12 would be one "size," not two.

CHAPTER 16: THE GRADE MENU

GRADE

The GRADE command converts a garment pattern from a single size to a nest of sizes, based on the grading arrows already in the drawing. Each new size is placed on a different layer.

Procedure:

1. Each object to be graded should have grading arrows already attached. (Use the ADD ARROW and EDIT ARROW commands.)
 2. Select "Grade" from the **Grade** menu. The prompt on the command line says `Select objects to grade:`
 3. Select one or more objects to be graded by clicking on them with the left mouse button.
 4. **To stop selecting objects**, click the right mouse button, or press the <ESC> key. A dialog box will come up with two fields:
 - **Number of sizes:** If your first piece is Size Small, and you want to generate Medium, Large, and Extra Large, then the number of sizes to generate would be three.
 - **Size Interval:** The length of an arrow represents one size. If you want a jump of more than one size between each item you create, indicate that information here. A negative size interval creates smaller sizes instead of larger ones.
- Note:** It's up to you, when you create the grading arrows, to decide what a jump of one size means. For instance, if your pattern only comes in even sizes, a jump from Size 8 to Size 10 would be one size, not two.*
5. After you enter the numbers, click the "OK" button. Objects in the new sizes will be generated and the command is complete. Each size will be on a different layer.

READ TABLE

(Expert/Marker Versions only)

READ TABLE loads a grading table from a file into the current drawing. This is part of the grading process. Use the SAVE TABLE command to save a grading table file. When you load the table, this grading information is added to the object(s) in your drawing. The grading information is displayed as arrows.

The objects receiving the arrows should be oriented the same way that the table was intended for, i.e. arrows for a right side piece can't be read into a left side piece, etc.

Procedure:

1. Select "Read Table" from the **Grade** menu. An "Open File" dialog box is displayed, listing available grading tables. Grading tables have filenames ending with ".GRD."
2. Select a grading table and then click the "OK" button.
3. Now PatternMaker prompts you with a description of each grading arrow in the table (the name of the arrow, as assigned in the Edit Point window).

4. For each arrow, select the point that the arrow is to be added to by clicking on the point with the left mouse button. If you don't want to add a particular arrow to your pattern, press <ESC>, or click the right mouse button. Continue until PatternMaker stops prompting you for points.

SAVE TABLE

(Expert/Marker Versions only)

The SAVE TABLE command creates a grading table file from the arrows in the current drawing and saves the information in a file.

Procedure:

1. Create a pattern with grading arrows, if you haven't already done so. Use the various arrow commands to do this. Make sure each arrow has a name that describes where it goes.
2. Select "Save Table" from the **Grade** menu. The command line prompts you to select an object. Click to select each object that you want to have as part of this particular grading table. For example, you can select all the pieces of a bodice pattern, or just the sleeve.
3. **To stop selecting objects**, press the <ESC> key or click the right mouse button. A "Save File" dialog box will appear.
4. Type a name for the table, and click the "Save" button. Next a "Description" dialog box will open.
5. Type a description of the type of garment the grading table is used for, and click the "OK" button.

ADD ARROW

(Expert/Marker Versions only)

ADD ARROW attaches a grading arrow to a vertex of an object. Grading arrows contain the information used to grade patterns.

Procedure:

1. Activate the ADD ARROW command by clicking the Add Arrow icon, or select "Add Vertex" from the **Grade** menu. The prompt on the command line says `Point to attach arrow to:`
2. Select a vertex of an object by clicking on it with the left mouse button. This is where the "tail" of the arrow is. You can only select one vertex at a time, so if you click on a second vertex, the first is unselected.
3. **When you have the correct vertex selected**, click the right mouse button, or press the <ESC> key. The prompt on the command line says `Select end point for arrow:` The end point represents the amount of change from one size to the next. Change to the left or right is called the dX value, and change up or down is called the dY value.
4. As you move the mouse around, you can see the head of the arrow move with it. You have two options for positioning the head of the arrow:
 - When the arrow is close to where you want it, click the left mouse button to anchor the arrow. If you're going to use EDIT ARROW to type in the dX and dY values afterward, it doesn't matter where you put the head of the arrow when you first create it.
 - Type in a position for the head of the arrow using the relative coordinate format. This saves you the step of going to EDIT ARROW for each arrow.

5. The grading arrow is created when you finish either of the two options above.

A grading arrow can be attached to any vertex in any type of object.

ADD TACK

(Expert/Marker Versions only)

The ADD TACK command attaches a tack to a vertex of an object. A tack is a grading arrow of zero length, and holds a point in place when you grade an object.

Procedure:

1. Select "Add Tack" from the **Grade** menu. The prompt on the command line says `Point to attach tack to:`
2. Select a vertex of an object by clicking on it with the left mouse button. You can only select one vertex at a time, so if you click on a second vertex, the first is unselected.
3. **When you have selected the correct point**, click the right mouse button, or press the <ESC> key. A tack is added to the selected point.

COPY ARROW

(Expert/Marker Versions only)

The COPY ARROW command copies an arrow from one vertex (point) to another.

Procedure:

1. Select "Copy Arrow" from the **Grade** menu. The prompt on the command line says `Select arrow to copy:`
2. Select the arrow you want to copy by clicking on its vertex (end point). You can only select one arrow at a time, so if you click on a second arrow, the first is unselected.
3. **When you have selected the correct arrow**, click the right mouse button, or press the <ESC> key. The prompt on the command line says `Select point to add arrow to:`
4. Select the point you want to copy the arrow to. You can only select one arrow at a time, so if you click on a second arrow, the first is unselected.
5. **When you have selected the correct arrow**, click the right mouse button, or press the <ESC> key. The arrow will be copied to the new location. If the destination point already has an arrow, the existing arrow will be replaced by the one you are copying.

MOVE ARROW

(Expert/Marker Versions only)

The MOVE ARROW command moves a grading arrow from one point to another.

Procedure:

1. Select "Move Arrow" from the **Grade** menu. The prompt on the command line says `Select arrow to move:`

2. Select the arrow you want to move by clicking on its vertex (end point). You can only select one arrow at a time, so if you click on a second arrow, the first is unselected.
3. **When you have selected the correct arrow**, click the right mouse button, or press the <ESC> key. The prompt on the command line says `Destination for arrow:`
4. Select the point you want to move the arrow to. You can only select one arrow at a time, so if you click on a second arrow, the first is unselected.
5. **When you have selected the correct arrow**, click the right mouse button, or press the <ESC> key. The arrow will be moved to the new location. If the destination point already has an arrow, the existing arrow will be replaced by the one you are moving.

INTERP ARROW (INTERPOLATE ARROW)

(Expert/Marker Versions only)

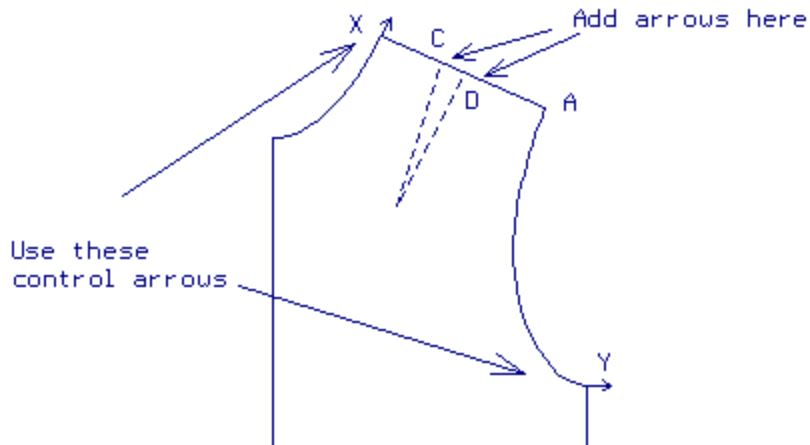
The INTERPOLATE ARROW command adds a grading arrow to a vertex (point), using the grading arrows from two other points as guides. Use this command to make the grading of one object follow the rules established by the grading arrows on a different object, and when copying an arrow would give the wrong result. (Interpolation means “finding an in-between value.”)

Procedure:

1. Select "Interp Arrow" from the **Grade** menu. The prompt on the command line says `Point to add interpolated arrow to:`
2. Select the point to add an arrow to by clicking on it with the right mouse button. You can only select one point at a time, so if you select a second point, the first will be unselected.
3. **When you have selected the correct point**, click the right mouse button, or press the <ESC> key. The prompt says `First control point:`
4. Select the first point whose grading rules you want this new arrow to follow. This point must have an arrow attached to it. You can only select one point at a time, so if you select a second point, the first will be unselected.
5. **When you have selected the first control point**, click the right mouse, or press the <ESC> key. The prompt now says `Second control point:`
6. Select the second point whose grading rules will guide this new arrow. This point must have an arrow attached to it. Again, you can only select one point at a time.
7. **When you have selected the second control point**, click the right mouse button, or press the <ESC> key. The interpolated arrow will be created based on the two control points.

The new arrow's dX and dY values are calculated by the same process that is used to grade a point that doesn't have an arrow – it's guided by the two “nearest” arrows.

Example:



When you grade the bodice piece, the movements of shoulder line AX are controlled by the arrows at X and Y. The dart piece needs to be graded so that the new dart touches the new shoulder line. Therefore, points C and D should also be controlled by the arrows at X and Y. Use the INTERP ARROW command to add arrows to C and D, using X and Y as the control points in each case.

Note: If you use the CUT or JOIN command on objects that contain arrows, PatternMaker may automatically add arrows to the pieces so they will still grade the same. This uses exactly the same process as the INTERP ARROW command.

DELETE ARROW

(Expert/Marker Versions only)

The DELETE ARROW command deletes a grading arrow.

Procedure:

1. Select "Delete Arrow" from the **Grade** menu. The prompt on the command line says `Select point(s):`
2. Select one or more grading arrows by clicking on the end point of the arrow. You can select as many arrows as you want by repetitive clicking.
3. **To stop selecting arrows**, click the right mouse button, or press the <ESC> key. The arrow(s) you selected will be deleted.

This action can be reversed using the UNDO command.

EDIT ARROW

(Expert/Marker Versions only)

The EDIT ARROW command is used to set the name, length and/or direction of a grading arrow. You can't usually draw an arrow exactly the right size with the mouse, so unless you are copying arrows from a grading rule that you've already established, you will need to use EDIT ARROW to enter the exact values for a grading arrow. You will also use EDIT ARROW to give your arrows breaks at different layers.

Procedure:

1. Select "Edit Arrow" from the **Grade** menu. The Edit Arrow dialog box appears (see illustration at right). This window displays the name of the currently selected arrow, and its grading information for each layer. The layer name and color cannot be changed with this function, and are shown for your information only (see the LAYER command).

Layer	dX	dY	Break
Layer0			B
Layer1	-1/8"	-1/8"	
Layer2	3/16"	3/16"	B
Layer3	0"	0"	
Layer4	1/8"	1/8"	B
Layer5			
Layer6			
Layer7			
Layer8			

Name:

2. The default name of an arrow is "Arrow" or "Tack." Rename the arrow to something more descriptive – for example, "Collar, Center Front" – by typing in this field. The name should describe the position of the arrow in the garment to be graded. The name will be saved in the grading table.

Units:

3. Click on the Units drop-down box to choose the units for editing your arrow. When you change the Units, the numbers in the table below change accordingly. If you are working in metric units, you have a choice of centimeters or millimeters. If you are working in inches, you can choose Decimal (ordinary numbers with a decimal point) or various fractions of an inch. For instance, if you choose 1/16", all the values for the arrow are rounded to the nearest 1/16th inch.

Tip: If you are using one of the fractional units, you can enter numbers in fraction form. For example, you can enter "3/8" in the dX field. To enter numbers larger than 1", use improper fractions – for example, enter 1-1/8 as 9/8.

Note: Remember that when you change the Units, the value of the arrow hasn't changed; you are just seeing the same information displayed in a different way.

Note: To switch between inches and metric units, see the UNITS command. This is different than the "Units" discussed here, and must be selected before beginning EDIT ARROW.

Mode:

4. Select one of four modes for displaying the values for an arrow:

<i>X/Y</i>	dX and dY values are shown for each layer
<i>Polar</i>	values are shown as distance and angle
<i>Relative</i>	the total dX and dY values are shown relative to a highlighted layer

Scaled incremental dX and dY values are shown, beginning with a highlighted layer

Keep in mind that whichever mode you select, the length and direction of an arrow remain the same. The only thing that changes is the way the information is shown to you.

The Arrow Information:

5. For each layer there are three input fields:

dX The length of the arrow in the X (horizontal) direction. A positive X value means the arrow goes to the right, and a negative X value means the arrow goes to the left. If the dX is empty, it means there is no grading break for this size, and the arrow uses the same dX values as for the previous layer.

dY The length of the arrow in the Y (vertical) direction. A positive Y value means the arrow goes up, and a negative Y value means the arrow goes down. If the dY is empty, it means there is no grading break for this size, and the arrow uses the same dY values as for the previous layer.

Break If this box is checked, there is a grading break at this layer (size). A grading break means that this point grades differently for sizes larger than this, and that a different dX and dY are used than for previous sizes. If the box is not checked, then there is no grading break, no numbers are shown for this size, and the arrow uses the same values as for the previous size.

6. Change the values for the dX and dY by either typing a number in the box, or by clicking the small up and down arrows at the right of each box to increase or decrease them by the amount selected under "Units."
7. Set or clear a breakpoint for a layer by clicking in the corresponding "Break" box. (Or, if you enter values in the blank dX and dY areas, the layer will automatically become a break point.) A "B" appears in the box if that layer is a break point. To remove a break point, click on the break point box with a "B" in it and the "B" will disappear. Then the dX and dY values will follow the last previous break point.
8. When you have set all the break points you need and given them the correct values (don't forget to use the scroll bar to check all layers), you are done editing this arrow. Click the "OK" button to exit the dialog box.

Note on break points

When you first create an arrow, the only break point is at Layer 0. This means that when you grade the object, the increase from each size to the next size will be the same. Many patternmakers do not use a constant grade. For instance, all sizes up to size 8 might grade one way, then there will be a larger increment for sizes 8 - 14, then a larger increment for sizes above 14. The sizes at which the grade increment changes are called break points.

Note: Each arrow in your drawing has its own break points and values. It is possible for different arrows in the same pattern to have breaks at different sizes. If you want them to all break the same way, you have to set the breaks in each arrow.

Arrow Display Modes

There are four modes for displaying the values for an arrow: X-Y, Polar, Relative, and Scale. Keep in mind that whichever mode you select, the length and direction of the arrow are the same. The only thing that changes is the way the information is shown to you.

You may use any of the modes to adjust the arrow. If you change the values in one mode, the arrow will automatically be recalculated when you switch to another mode.

X-Y MODE

In X-Y mode, the dX and dY values of the arrow are shown for each layer. Most commercial grading methods use dX and dY values to set grades (although they may use different names, they mean the same thing). The *dX* value indicates how much the arrow moves in a horizontal direction from one layer to the next, and the *dY* value indicates how much it moves in a vertical direction.

POLAR

In Polar mode, the values are shown as “dist” (the length of the arrow) and “angle” (the direction of the arrow). Angles are calculated in the usual way: 0 degrees goes to the right, 90 degrees goes straight up, and so on. This mode is useful if you know the length you want for an arrow but want to set the direction “by eye.” First draw an arrow going the right direction, then use EDIT ARROW to set the length.

Hint: To reverse the direction of an arrow, leave the angle the same but change the length to a negative number. The program will recalculate the arrow with the new direction and a positive length.

RELATIVE

In Relative X-Y mode, values are also shown as dX and dY values, but one layer is highlighted and the values for the other layers are relative to this layer. You will usually use this mode with your base size as the highlighted layer. For example, if you are drafting a Size 10, and intend to grade up and down from there, highlight the “Size 10” layer. The numbers for the other layers represent the ***total amount of change*** from that layer to Size 10.

Example:

- Set the Edit Arrow “Units” to 1/8”.
- Size 10 is your base size. You define an increase of 1/8” from size 10 to 12, and an increase of 3/8” from size 12 to 14.
- Highlight the layer for Size 10. The layer for Size 12 says “1/8” and the layer for Size 14 says “1/2” (one-eighth for size 12 plus three-eighths for size 14 equals four-eighths, which equals one-half).

*Note: Although there are no “minus” signs used in the Edit Arrow box, please note that numbers entered for sizes **smaller** than your base size indicate a decrease in size. Each set of numbers on a “smaller” layer indicates how much the pattern is to be **graded down**.*

Note: The dX and dY values for the highlighted layer will always be “0”, because a layer does not change as compared to itself.

SCALE

The Scale mode is similar to the Relative mode, except that each layer shows the *incremental change*, rather than the *total amount of change* from one layer to the next.

Example:

- Set the Edit Arrow “Units” to 1/8”.
- Size 10 is your base size. You define an increase of 1/8” from size 10 to 12, and an increase of 3/8” from size 12 to 14.
- Highlight the layer for Size 10. The layer for Size 12 says “1/8” and the layer for Size 14 says “3/8.”

*Note: Although there are no “minus” signs used in the Edit Arrow box, please note that numbers entered for sizes **smaller** than your base size indicate a decrease in size. Each set of numbers on a “smaller” layer indicates how much the pattern is to be **graded down**.*

Note: The dX and dY values for the highlighted layer will always be “0”, because a layer does not change as compared to itself.

Layer names and colors

On the left of the main part of the display are the names of each layer. To select a layer in Relative or Scale mode, click on that layer. In the other modes, these names are only for your information and there is nothing for you to change here. Similarly, the layer colors are only displayed for your information. (To change the name or color of a layer, use the LAYER command, on the **Settings** menu.)

Reviewing your arrows

With a big pattern, it can be difficult to check all your grading arrows one by one to see if they are correct. The best way to do this is to use the SAVE TABLE command to write all of your arrows to a text file, and then use a text editing program to look at this table. Since PatternMaker’s grading table files use plain ASCII text, any text program, such as WordPerfect or the Windows Notepad, can read them. You must give your arrows unique names before you do this, or you won’t be able to tell them apart when you read the table.

Note: It’s possible to use a text editing program to change a grading table file, although we don’t give instructions for doing this. If you do change one of these files, remember that your changes will have no effect on any PatternMaker drawing until you use READ TABLE to read the table into a pattern.

Another way to quickly check your arrows is to simply grade the pattern. Look at the nest that is created and see if anything is out of place. Then, if you weren’t ready to use the nest of pieces you just created, simply use UNDO to get rid of them.

ARROWS ON/NAME/OFF (TOGGLE ARROWS)

(Expert/Marker Versions only)

TOGGLE ARROWS shows or hides the grading arrows and their names. This command is found on the **View** menu. You can also use the shortcut key <F7> for this command.

There are three setting combinations:

1. ON: Arrows on (visible) and arrow names off (not visible). This is the default setting.
2. OFF: Arrows off and arrow names off .
3. NAME: Arrows on and arrow names on

Repeatedly selecting the TOGGLE ARROWS command toggles arrow visibility between the three choices.

CHAPTER 17: MARKER OVERVIEW

If you are using PatternMaker in a manufacturing environment, a marker is the end result of your work. A marker is a paper printout with all of the outlines of the pieces, ready to be laid over the fabric and cut. PatternMaker's marker functions let you arrange the pieces in the marker area, make sure the pieces touch but don't overlap, set the number of items of each size (the cut ratio), tell you the rate of material usage and other information, and print out the marker.

Most of the Marker commands are located on the **Marker** menu. Two commands, PRINT MARKER and PRINT MARKER REPORT are found on the **File** menu.

STEPS FOR CREATING A MARKER

- Lay out your pattern.
- Define the marker pieces.
- Group pieces with other objects.
- Change the view to Marker Mode.
- Grade the pattern.
- Set the cut ratio.
- Multiply pieces by the Cut Ratio.
- Arrange the pieces in the Marker Area.
- Print the marker, and a marker report.

Note: See Tutorial 12 for practice in laying out a marker.

Laying Out The Pattern

First, make up your pattern for one garment, using the techniques and tools described in this manual. Then, use the DEFINE PIECE command to tell the computer which objects in the drawing will be marker pieces.

Defining Marker Pieces

A marker is made up of the outlines of the actual pieces to be cut out of the material. When you arrange the pieces on the marker, it is these objects that you need to arrange. Other items in the pattern – grain lines, text, and so on – don't affect the arrangement. Therefore, you need to tell PatternMaker which objects to treat as marker pieces.

Use the DEFINE PIECE command to turn an ordinary object in your drawing into a marker piece. Use the UNDO PIECE command to turn a piece back into an ordinary object. These commands are described in more detail in the next chapter.

A marker piece is still a PatternMaker object. You can still do all the usual things with it: cut it, move it, erase it, and so forth. But PatternMaker's marker pieces are special in a few ways:

- The ARRANGE, PACK and CUT RATIO commands only work with marker pieces.

- When the screen view is in Marker Mode, all objects are hidden except those defined as marker pieces.
- PatternMaker's marker reports tell you things about your pieces, such as how many there are and how much material they use.

Grouping Objects With Marker Pieces

As mentioned above, many of PatternMaker's marking features don't apply to objects that are not marker pieces. But what if your pattern pieces consist of more than one object? When you arrange your marker pieces, you don't want to move them away from their grain lines, piece labels, and notch marks.

To keep objects together when you arrange them, use the GROUP command to group them together. For instance, for a sleeve, the marker piece will be the outline of the sleeve, and other objects in the group might be the grain line, the text identifying the piece, etc.

Now, when you select the piece to arrange, the other items grouped with it will also be selected and they will move along with it. PatternMaker makes sure that pieces don't overlap other pieces when you arrange them, but it doesn't care if the objects grouped with a piece overlap.

Note: You can't group a marker piece with another marker piece.

See Chapter 13: The SYMBOL Menu for a description of the GROUP and UNGROUP commands.

Marker Mode

PatternMaker has two modes for showing your drawing on the screen. Marker Mode is used when arranging markers. Draw Mode is used for everything else. An area at the far left of the black Status Bar tells you which mode you are in. Change modes by clicking the mouse on this area.

When you switch to Marker Mode, two things happen. First, all objects in your drawing disappear except for the marker pieces. This makes it easier to see what you are doing when you arrange the pieces. Second, a different set of icons appears in the icon area. These icons represent various Marker commands. All the usual commands are still available from the pull-down menus, however.

Now that your marker pieces are defined, and grouped with the other objects that go with them, set the display to Marker Mode by clicking the mouse on the "Mode" area of the menu bar. If any of your pattern pieces disappear when you change to Marker Mode, it means you haven't defined them as pieces yet. Go back to Draw Mode and define the pieces.

Grading Your Pattern

Now it is time to grade your pattern. Grading is covered in Chapter 15: Grading Overview. You may have already attached the grading arrows to your pattern, or you may do it now.

Note: You may need to attach grading arrows to some of the objects that are grouped with the marker pieces. If you grade an object that contains no grading arrows, PatternMaker will make exact duplicates of the object in the same place. At first, it will look like there are no new objects because they are drawn right on top of each other. This is fine.

Warning: Don't clutter up your pattern with graded copies of items you don't need for your marker – if you don't want to grade an object, don't group it with the marker piece. Usually, the only objects you need in a marker are the pieces themselves and perhaps grain lines and punch marks.

The *GRADE* and *CUT RATIO* commands make multiple copies of each object you select, and the effects are cumulative. If you are careless about how many items you include in a large marker, it's possible to create hundreds of unnecessary objects. This will slow down the program, make your save files very large, and may take up so much memory that the program stops.

Note: *To protect yourself against losing all your work, use SAVE AS to save a marker in a different file than the original pattern it was made from. That way, you can't lose the original pattern.*

Note on Stripe/Plaid Arrangements: If you need to set plaid points for some of your pieces, do it before you grade them. Then all of the graded pieces will also include the plaid points.

Cut Ratio

A cut ratio represents the relative numbers of different sizes of a garment that you want to make. With PatternMaker, each size has a cut ratio that tells PatternMaker how many items of that size will go into a single marker. For instance, a marker may contain enough pieces to make 2 size Small, 3 size Medium, 3 size Large, and 2 size X-Large.

PatternMaker's *CUT RATIO* command makes enough copies of the selected pieces to match the cut ratio for each object's size. It also spreads them apart so you can see them all.

Note: *A piece's cut ratio is determined by the layer it is on. Therefore, you should make sure all of the pieces for a given size are on the same layer at this point. Normally, the GRADE command takes care of this by placing each new size on a different layer.*

Use the *LAYER* command (Chapter 14: The *SETTINGS* Menu) to set the cut ratio for each layer. You only need to set cut ratios for those layers that represent sizes you will be using.

Note: *While you are looking at the layer display, make sure that each layer has a name that tells you what size is on that layer, i.e. "Small" or "Size10." This will save much confusion later on.*

Next, select the CUT RATIO command. PatternMaker will make copies of each marker piece that you select, according to each size's cut ratio. Normally, you will select all of the pieces in the drawing for Cut Ratio.

Example: If a piece is on layer "Large," and the cut ratio for "Large" is 3, then 2 copies will be made for a total of 3.

The CUT RATIO command assigns a bundle number to each piece it creates. When you print your marker, each piece is labeled with its size and bundle number. When you put all the pieces with the same size and bundle number together, you will have a bundle containing enough pieces to make one garment.

Auto Arrange

The AUTO ARRANGE command arranges a marker for you. Keep in mind that this can take time, and also that the computer is not always smart enough to find the best arrangement. Look at your marker after the computer's done and check to see if you need to rearrange things.

Auto Arrange is very simple to use. Select the command, then select the marker pieces to be arranged (usually, you will arrange all of them at once). The program will then start trying different arrangements. It may take some time for all the pieces to be arranged. You can wait until it is done, or interrupt the process by clicking the right mouse button. If you interrupt an arrangement, the pieces are left in their partially arranged state.

ADJUSTING AN AUTO-ARRANGED PATTERN

If the program chooses an arrangement that is not efficient, you might have to rearrange a few pieces on your own. Sometimes you will see that you could pack things together better by rotating some pieces slightly. Use the ROTATE command for this (AUTO ARRANGE does not automatically rotate or flip pieces it is arranging, nor does it work with stripe/plaid spacing).

If you rearrange some pieces in the middle of your marker to make it more efficient, use AUTO ARRANGE again to re-pack the rest of the marker. This time, select only the pieces that are to the right of the pieces you rearranged.

ARRANGING A FEW PIECES AT A TIME

For some patterns, it's more efficient to auto-arrange a few pieces at a time. Auto-Arrange a set of from six to ten pieces, then arrange a few more pieces, and so forth. For instance, this often works well with sleeves because you usually get the best packing if you put sleeves with other sleeves.

The Marker Area

The marker area is the area of your drawing where the marker goes. When you select "Print Marker," this is the area that is printed out.

The marker area is shown by a gray-and-red rectangle. The right edge of the marker area extends off the edge of the screen. This represents the long bolt of fabric coming off of the roll. When you put some marker pieces into the marker area, a vertical green bar will show how long the actual marker is. Use the TOGGLE MARKER AREA or SET MARKER AREA commands to show the marker area on screen.

The vertical height of the marker area is equal to the width of your fabric. Set this width with the SET MARKER AREA command.

Arranging The Marker

Now you are ready to arrange the pieces on the marker. After you have graded your pattern and multiplied by the cut ratio, you will have quite a number of pieces in your drawing. Your task now is to arrange all these pieces in the most efficient way.

Use the ARRANGE MARKER command to place the pieces, one at a time, in the marker area. You can rotate them in 45 degree increments as you place them. Pack them together to use material efficiently. PatternMaker will make sure they touch without overlapping or going out of the marker area. Use the PACK LEFT, PACK UP and PACK DOWN commands to move pieces into tight spaces.

If you are arranging your marker for a striped or plaid fabric, you will have some pieces that need to be arranged so that the stripe or plaid lines match, rather than packing them together as close as possible. Set plaid points for these pieces before using the ARRANGE command. This is described in detail later.

ARRANGE is like the MOVE command, with some special features. ARRANGE only allows you to move marker pieces, and it makes sure the pieces you move don't overlap. Since you can't select non-piece objects for ARRANGE, you should group non-piece objects with a marker piece if you want to keep them together.

Here is the order of events for the ARRANGE command:

1. First, use the left mouse button to select the piece to move. Press <ESC>.
2. Then, select the base point and destination point for the move, just as with the ordinary MOVE command. Before selecting these points, you can rotate the piece to make it fit better (see below).
3. After you move the piece, PatternMaker will check to see if the piece overlaps another piece or the edge of the marker area. If it does, it will "bounce back" in the direction it came from until the two pieces just touch.
4. Then, use the Left Arrow, Up Arrow, or Down Arrow icons, or the L, U and D keys on your keyboard, to pack the piece tighter. You can do this as many times as you like.
5. When you are done arranging and packing a piece, press <ESC> or click the right mouse button to finish the ARRANGE command for that piece.

Hint: The ARRANGE command uses a more complicated sequence of mouse inputs than other PatternMaker functions. It is also the most important of the marking functions. Practice using it until you can arrange pieces quickly, one after the other. Remember, when you are done with one piece you can repeat the ARRANGE command by simply clicking on another piece.

Hint: Use the "bounce back" feature to your advantage. To push one piece up against another, just move it until it overlaps the second piece a little, and PatternMaker will make sure it just touches. You decide the direction to move it, and PatternMaker determines the distance.

Note: If a piece keeps bouncing back to its original position, this means PatternMaker can't find a place for it without overlap. Move the piece into a clear space where it doesn't overlap anything, then move it from there into its final position.

Hint: Sometimes you will want to fit a piece in a tight space by letting the seam allowances overlap just a little bit. In this case, use the MOVE command instead of Arrange. The MOVE command allows pieces to overlap. You can select MOVE from the Edit menu even though the MOVE icon disappears when you're in Marker Mode.

If you need to rotate a piece to fit it into the marker, use the rotate icons, or the X (left) or C (right) keys on your keyboard, while moving the piece. This will rotate the object right or left in 45 degree increments. There are also icons you can use to rotate the piece in 1 degree increments. Which rotations are acceptable depends on the grain of the material.

After you arrange each piece, a message on the prompt line will tell you what percentage of the material your marker uses. This percentage is just the area of the marker, divided by the areas of all the pieces in the marker area. If a piece lies partly in, partly out of the marker area, PatternMaker won't calculate the percentage.

Packing

After arranging each piece, you can push it further up, left, or down to pack it in tighter. PatternMaker will prompt you to pack each piece after you have placed it. Use the Up Arrow, Left Arrow, or Down Arrow icons to push the selected piece in the indicated direction. PatternMaker will move the piece in that direction until it touches another piece or the edge of the marker area. The PACK commands can also be selected separately.

Arranging For Stripes and Plaids

If you are using a striped or plaid (or print) pattern, you will need to arrange certain pieces so that the stripes line up with each other. For instance, a pocket on a striped shirt should be cut so its stripes match those on the shirt front. This means that when you arrange the marker, you can't just pack the pocket in next to the other pieces. Instead, it needs to be spaced apart by an amount based on the distance between stripes. With a plaid fabric, you need to have the proper spacing in both the horizontal and the vertical. The PLAID ARRANGE command lets you place pieces with stripe or plaid spacing.

Using PLAID ARRANGE is much like using the MOVE command with Snap to Grid turned on, with some special features added. This may help you visualize the following procedure.

STRIPE/PLAID SPACING

Use the SET MARKER AREA command to set the spacing for Stripe/Plaid repeats. When you run this command, you will see a dialog box with several numbers relating to the stripe/plaid spacing. The Vert. Stripe value is the spacing between vertical stripes. The Horiz. Stripe value is the spacing between horizontal stripes. Remember that this is not the distance between individual stripes, but the distance between repeats of the entire pattern.

If your fabric has vertical stripes (vertical as seen on the computer screen), set the value for the Vert. Stripe spacing and set the Horiz. Stripe spacing to zero. For horizontal stripes, set the Horiz. Stripe value, and put the Vert. Stripe value to zero. For a plaid repeat, set both values.

STRIPE/PLAID ORIGIN

In the Set Marker Area dialog box you will also see spaces for “Horiz. Base” and “Vert. Base.” These numbers represent the location of the beginning of the stripe or plaid pattern. For instance, if your plaid repeats need to start 1 inch from the left edge of the marker, and 3 inches from the bottom, you would set these numbers to 1.00 and 3.00.

Note: For some users, the origin of the pattern doesn’t matter because you don’t care where on the pieces the stripes are, as long as they line up. In this case, you can ignore these numbers.

SETTING THE PLAID POINTS

Before you can place a piece on a stripe or plaid line, you need to give the piece a plaid point. This is the reference point that actually ends up on the stripe or plaid line when you place the piece. For instance, if you have a pocket and a shirt front that need to be lined up, you are probably accustomed to using punch marks to indicate how they line up. Put the plaid points exactly where the two punch marks go. These two points will line up with the pattern of the material when you place the pieces on the plaid of the material.

To add a plaid point to an object, use the ADD PLAID POINT command. An object can have more than one plaid point, but only one is used at a time. If an object has more than one plaid point, you can change the active point with the ACTIVE PLAID POINT command.

A plaid point is shown as a small yellow “+” sign. An inactive plaid point is red instead of yellow.

STRIPE/PLAID ARRANGE

To arrange a piece on a stripe or plaid line, use the PLAID ARRANGE command. Select a marker piece. Notice that you don’t have to select a “base point” for this move. The plaid point is the base point of the move. Select a destination for the piece. PatternMaker will “snap” this destination to a point with the stripe and/or plaid spacing that you set with the SET MARKER AREA command (see Chapter 2: The PatternMaker Environment for a discussion of snaps). This overrides any snap mode you may have turned on.

Unlike ARRANGE, the PLAID ARRANGE command does not check whether the piece you arrange overlaps other pieces. It simply makes sure the piece obeys the stripe/plaid spacing you have set.

Marker Reports

When you have arranged your marker, use the MARKER REPORT command to get statistics and other information about your marker. A box appears containing the following information:

- Date and time
- Style name
- File name

- Length and width of marker
- Number of pieces (both total and number placed within marker)
- Efficiency (material yield in percent)
- Material required (yards per bundle)
- Cut ratios for each size
- Fabric name
- Notes
- Warning if number of pieces doesn't match cut ratio

When the report appears, you can print it, if you want, by clicking the Print button. You can also send the report directly to the printer with the PRINT REPORT command in the **File** menu.

Note: If your computer is connected to a large plotter, you will probably prefer to print the marker report on a desktop printer, if available. Use the PRINT SETUP command to choose a different printer for the report.

There are two main uses for the marker report. One is to estimate costs by seeing how much material your marker will use. The other is to make sure the marker is complete. If a mistake has been made and the marker doesn't contain the right number of pieces, the marker report will help you catch it before the marker goes to the cutting room.

First, look at the number of pieces placed, to make sure all the pieces are actually in the marker. Second, look for a note at the bottom of the report, saying "Piece/bundle count does not match cut ratio." If this note appears, then either the number of pieces for each bundle doesn't match, or the number of bundles in the various sizes doesn't match the cut ratio.

CHAPTER 18: THE MARKER MENU

ARRANGE MARKER

(Marker Version only)

The ARRANGE command arranges pieces in the marker area. ARRANGE is much like the MOVE command, but it packs the pieces together to get the most efficient material usage, while making sure pieces don't overlap each other or the edge of the marker area.

Preparation:

1. Before arranging a marker, use DEFINE PIECE to define the marker pieces.
2. Use GRADE and CUT RATIO to make multiple sizes and extra bundles, if desired.
3. Use SET MARKER AREA to set the stripe/plaid spacing distance, if necessary, and use ADD PLAID POINT to locate the piece's plaid/stripe reference point for the move.
4. Switch to Marker Mode to hide non-marker objects and make the ARRANGE icon visible.
5. Use SET MARKER AREA to change the settings for the marker area and make it visible.

Procedure:

1. Select "Arrange Marker" from the **Marker** menu. The prompt on the command line says `Select a piece:`
2. Click on a marker piece with the left mouse button. You can only select one piece at a time, so if you click on a second piece, the first is unselected.
3. **When you have selected the piece you want**, click the right mouse button, or press the <ESC> key.
4. Click again inside the selected piece to mark the "base point" (see the MOVE command for details).
5. As you move the mouse around, the marker piece follows. While moving the piece, you can rotate it in 45 degree increments with the Rotate Left and Rotate Right icons, or by typing "X" or "C".
6. If the piece you are placing has an active plaid point, the plaid point will snap to the nearest location that matches the stripe/plaid repeat. This overrides any Snap mode you may have active.
7. When you have the piece where you want it, click the left mouse button to place the piece into the Marker Area. If the piece overlaps another piece at its destination, it will "bounce back" toward its original position.
8. Another prompt will appear, asking you to select a PACK function (Pack Up, Pack Down, or Pack Left). Type "U", "D", or "X", or use the Pack icons, to pack the piece.
9. You may pack the selected piece as many times as you like. When you are done placing the piece, click the right mouse button, or press the <ESC> key to end the ARRANGE command. A message will appear on the prompt line telling you how efficient your use of material is.

DEFINE PIECE (MARKER PIECE)

(Marker Version only)

The DEFINE PIECE command tells PatternMaker to treat a certain object as a marker piece. You must do this with an object before you can use the ARRANGE MARKER command on it. Only a polygon object (not text, dimension objects, or symbol insertions) can be a marker piece. If you copy or grade marker pieces, the new objects will also be marker pieces. Often, you will want to group other objects with a marker piece (see GROUP command).

Procedure:

1. Select "Define Piece" from the **Marker** menu. The prompt on the command line says `Select object to be marker piece:`
2. Select the object you want by clicking on it with the left mouse button. Only one object at a time can be selected, so if you click on a second object, the first is unselected.
3. **When you have selected the piece you want**, click the right mouse button, or press the <ESC> key.
4. Repeat for each object that you want to define as a marker piece. To see which objects are marker pieces, switch to Marker Mode.

Only marker pieces can be placed with the ARRANGE command, copied with the CUT RATIO command, or counted by the MARKER REPORT command. Also, only marker pieces are shown when the screen is in marker mode. Otherwise, marker pieces are treated like any other objects.

UNDO PIECE

(Marker Version only)

The UNDO PIECE command converts a marker piece back to an ordinary drawing object.

Procedure:

1. Select "Undo Piece" from the **Marker** menu. The prompt on the command line says `Select marker piece(s):`
2. Select the marker pieces you want to convert back to an ordinary object by clicking with the left mouse button. You can select as many pieces as you want by repetitive clicking.
3. **To stop selecting pieces**, click the right mouse button, or press the <ESC> key. The pieces are converted back to drawing objects.

If you are in the Marker Mode when you perform this command, the piece(s) you convert will disappear from the screen, since only objects defined as Marker pieces are visible in this mode. The piece(s) you converted will still be visible in Draw Mode.

CUT RATIO

(Marker Version only)

The CUT RATIO command makes copies of the selected marker pieces. The number of copies for each piece is determined by the cut ratio of the layer on which that piece is drawn. For example, if the cut ratio for a certain layer is 3, then two more copies of each selected piece are created, for a total of three.

Procedure:

1. If you have not already done so, set the cut ratio for each layer in the Layers window (see LAYER).
2. Select "Cut Ratio" from the **Marker** menu.
3. Select one or more marker pieces. Normally, you should use the "All" icon to select every piece in your pattern. This ensures that the total count of pieces is correct.
4. **To stop selecting pieces**, click the right mouse button, or press the <ESC> key. You will then be asked if you want to pre-place the pieces. If you answer "Yes," PatternMaker will place the pieces above the marker area. If you answer "No," PatternMaker will leave the original objects where they are and place the copies to the right of the originals.

Cut Ratio also assigns a bundle number to each piece it creates. A bundle is a set of pieces that go together to make a single garment. By putting all the pieces with the same size and bundle number together, you ensure that you have the right pieces when it is time to sew them together.

ADD PLAID POINT

(Marker Version only)

The ADD PLAID POINT command sets the reference point used when arranging the marker pieces. The ARRANGE command will place the piece so that its plaid point is forced to a specified distance from the origin of the marker area. This ensures that the piece will correspond to the plaid or striped print of the material.

A plaid point is not the same as a vertex. The Point functions (MOVE VERTEX, etc.) do not apply to plaid points. Only marker pieces can have plaid points. A piece can have more than one plaid point, but only one is active at a time. By default, when you add a plaid point to a piece, it becomes the active point. Use ACTIVE PLAID to activate a different plaid point.

Procedure:

1. Activate the ADD PLAID POINT by selecting "Plaid" from the **Marker** menu, then select "Add Plaid Point" from the submenu that opens.
2. Select a marker piece by clicking on it with the left mouse button. Only one piece can be selected at a time, so if you select a different piece, it replaces the first as the piece that is highlighted.
3. When you have selected the marker piece that you want, click the right mouse button, or press the <ESC> key. You will be prompted for the location of the plaid point.
4. Click on the marker piece to indicate the location of the plaid point. This is the point that will be placed on a plaid or stripe line when you do a Plaid Arrange. After you click once the plaid point is inserted, and the command is finished.

When you Arrange the marker, PatternMaker will place the piece so that the plaid point is an even multiple of the stripe spacing from the origin of the marker area. For instance, if the stripe spacing is 6 inches, the piece can go 6, 12, 18... inches from the base of the marker area, and so forth.

ACTIVE PLAID POINT

(Marker Version only)

ACTIVE PLAID POINT is used to choose which of a marker piece's plaid points is used when the piece is placed in the marker area. The active plaid point will snap to the plaid spacings specified with the SET MARKER AREA command.

Procedure:

1. Activate the ACTIVE PLAID POINT command by selecting "Plaid" from the **Marker** menu, then select "Active Plaid Point" from the submenu that opens.
2. Select the plaid point that you want to be the active one. An active plaid point is shown as a yellow plus ("+") sign. Inactive plaid points are shown in red. As a point is selected, a red X appears on top of the plus sign.
3. After you have selected the point you want, click the right mouse button, or press the <ESC> key. The plaid point you selected will be activated.

This command only applies to pieces that have more than one plaid point. If a piece has only one plaid point, it is automatically active.

ERASE PLAID POINT

(Marker Version only)

ERASE PLAID POINT deletes a plaid point from a marker piece.

Procedure:

1. Activate the ERASE PLAID POINT command by selecting "Plaid" from the **Marker** menu, then select "Erase Plaid Point" from the submenu that opens.
2. Select the plaid point(s) you want to delete by clicking on them with the left mouse button. You can select and unselect as many points as you want by repetitive clicking. If you select a point by accident, just click on it again.
3. **To stop selecting points**, click the right mouse button, or press the <ESC> key. The plaid point(s) you selected will be deleted.

It is possible to delete the active plaid point. If you do so, PatternMaker will automatically designate another plaid point on that piece as the active plaid point.

NO PLAID

(Marker Version only)

The NO PLAID command is used when you do not want any of the plaid points in a marker piece to snap to the plaid spacing. This command does not delete the plaid points.

Procedure:

1. Select "Plaid" from the **Marker** menu, then select "No Plaid" from the submenu that opens.
2. plaid points on all pieces inactive, or select piece?

PACK LEFT, PACK UP, PACK DOWN

(Marker Version only)

The PACK commands move a marker piece, like the ARRANGE command does, but in a specified direction. This is sometimes an easier way to pack pieces tightly in a corner. The PACK commands can either be called separately, or as an option under the ARRANGE command. See ARRANGE MARKER, above, for more details.

Procedure:

1. Activate the PACK commands either from the Pack icons or by selecting the command from the **Marker** menu. Select one of the following:
PACK LEFT Used to pack a marker piece more tightly in the marker area. The selected piece is moved left until it touches either the left edge of the marker area or another piece.
PACK UP Used to pack a marker piece more tightly in the marker area. The selected piece is moved up until it touches either the upper edge of the marker area or another piece.
PACK DOWN Used to pack a marker piece more tightly in the marker area. The selected piece is moved down until it touches either the lower edge of the marker area or another piece.
2. Select the marker piece(s) you want to pack by clicking on them with the left mouse button. You can only select one piece at a time, so if you click on a second piece, the first is unselected.
3. **When you have selected the piece you want**, click the right mouse button, or press the <ESC> key. The piece will be moved as far as possible in the direction you selected.

MARKER REPORT

(Marker Version only)

The MARKER REPORT command displays information about the marker. You can print the report with the “Print” button that appears, or by selecting “Print Marker Report” from the **File** menu.

Listed are:

Date and time

Style name (set from MARKER SETTINGS)

File name

Length and width of marker

Number of pieces (both total and number placed within marker)

Efficiency (material yield in percent)

Material required (yards per bundle)

Cut ratios and layer names for each size

Fabric name (set from MARKER SETTINGS)

Notes (set from MARKER SETTINGS)

Warning if pieces don’t match cut ratio. This message appears if the bundles don’t all have the same number of pieces, or if the number of bundles on a layer doesn’t match that layer’s cut ratio.

When the report appears, you are given the option of sending it to the printer. You can also send the report directly to the printer with the PRINT REPORT command on the **File** menu.

Use MARKER SETTINGS to enter the style name, fabric name and up to three notes.

MARKER SETTINGS

(Marker Version only)

MARKER SETTINGS lets you enter extra information about the marker, such as the fabric and style name. This information is displayed and printed in the marker report.

Procedure:

1. Select "Marker Settings" from the **Marker** menu. The Marker Settings dialog box opens.
2. Enter the material, style name, and up to three notes of your own choice.
3. When finished, click the "OK" button to return to the drawing screen.

SET MARKER AREA

(Marker Version only)

The SET MARKER AREA command sets the width of the marker area and sets the stripe and plaid repeat distances.

Procedure:

Select "Set Marker Area" from the **Marker** menu. A dialog box appears with five fields. To change a setting, highlight the number and type in a new value. The settings are:

- **Width** The width (vertical size) of the marker in inches. This is equal to the usable width of your fabric. (The length of the marker is determined by the pieces placed within it.)
- **Vert. stripe** The spacing between vertical stripes on your fabric. (A vertical stripe is one that is vertical as seen on your computer screen.) Enter the distance between pattern repeats, not the distance between individual stripes. If your fabric has horizontal stripes only, set this to zero.
- **Horiz. stripe** The spacing between horizontal stripes on your fabric. If your fabric has vertical stripes only, set this to zero.
- **Vert. base** The distance from the lower edge of the marker to the beginning of your fabric's pattern. This is the point where the horizontal stripe/plaid repeats will be measured from.
- **Horiz. base** The distance from the left edge of the marker to the beginning of your fabric's pattern. This is the point where the vertical stripe/plaid repeats will be measured from.

See Stripe/Plaid Arranging, in the previous chapter, for a discussion of the use of Vertical/Horizontal stripe and base. If you don't need to arrange pieces on a stripe or plaid repeat, you can ignore all of the numbers except the marker width.

The marker area is shown by a gray and red outline. If the marker area was turned off before, it will be turned on. The end of the marker area extends off the right side of the screen. A green bar shows the current length of the marker area, as determined by the marker pieces in the marker. This is updated whenever you place a marker piece or run a marker report.

MARKER MODE

(Marker Version only)

Marker Mode toggles the screen display between draw mode and marker mode. Draw mode is the normal mode. Marker Mode is used when arranging and printing markers. The “mode” area at the left end of the black Status bar on your screen tells you which mode you are in.

In Marker Mode, all objects except marker pieces are hidden. Also, the usual command icons are replaced with icons for the marker commands. However, all commands are still available through the pull-down menus.

Procedure:

Enter Marker mode either by selecting “Marker Mode” from the **Marker** menu, or by clicking the mouse on the mode area in the Status bar.

SECTION SEVEN: DIGITIZING TABLETS

CHAPTER 19: WORKING WITH A DIGITIZER

A digitizing tablet, or digitizer, is an electronic tablet with its own mouse or other pointing device. It is used in place of an ordinary mouse. A digitizer is very helpful in drawing with PatternMaker because you can use it to “trace” patterns from paper, which you can’t do with an ordinary mouse. A digitizer is not required to use PatternMaker, but you can’t trace patterns from paper without one.

The digitizer commands and WINTAB digitizer interface are not available in PatternMaker Home version. Your digitizer will still work as a mouse, but the scaling may not be correct.

The pointing device you use with your digitizer may be a mouse, puck, or pen, depending on the digitizer.

Most popular digitizers are supported through the WINTAB Windows digitizer interface. Your digitizer supplier should have instructions on how to set your digitizer to work with Windows.

If you expect to be digitizing many patterns from full-size originals, we strongly recommend you buy the biggest digitizer you can – it will be well worth the investment. The largest are about the size of a kitchen table, big enough to spread a pattern out.

INSTALLATION

Your digitizer should come with two cables: one to connect the tablet to your computer, and one power cord. Depending on your digitizer model, the power cord may plug directly into the digitizer, or it may plug into the “plug” on the end of the serial cable which then plugs into a serial port on the back of your computer. If in doubt, follow the directions in the digitizer’s instruction manual.

Your digitizer should also come supplied with a diskette with driver programs for the digitizer. PatternMaker works with any digitizing tablet that comes with a WinTab driver, which must be installed on your computer before the digitizer will work. Follow the installation directions that come with the digitizer.

Verifying that your digitizer is working

When your digitizer driver is installed and the digitizer is plugged into your computer, reboot the computer. When you move your digitizer mouse on the digitizer surface, the mouse cursor should move. When you start PatternMaker, you will see a little plus (+) sign. This is the digitizer cursor. You may also have the usual arrow-shaped mouse cursor at the same time, depending on the WinTab settings. If you don’t, you can switch the digitizer to mouse mode at any time with the Digitizer TOGGLE MODE function.

At the far right of the Status Bar is an icon which looks like either an arrow cursor or a plus sign. This indicates which mode the digitizer is in (see below). If this icon doesn’t appear when you start PatternMaker, it means that the computer doesn’t know the WinTab driver is installed. Recheck the configuration and reboot your computer, if necessary.

USING THE DIGITIZER

The digitizer can work as a mouse, or it can work as a digitizer in absolute mode. Some definitions may make this more clear.

Absolute Mode means the digitizer tells the program where the digitizer puck is. This number is given in 100ths or 1000ths of an inch, measured from the lower left hand corner of the digitizing pad. Depending where the puck is, you may or not be able to see the cursor. If you can't see the cursor, zoom out (press the <PAGE UP> key) until you can see it. In digitizer mode you can trace objects very accurately but you cannot use the menus or icons. To run commands you need to use the keyboard or switch to mouse mode. When the program is running in absolute mode, the screen cursor is a "+" (plus sign).

Mouse Mode means the digitizer works just like an ordinary mouse. The digitizer tells the program where the Mouse Cursor is, measured in pixels (screen dots) from the lower left corner of the screen. This is much less accurate than digitizer mode, and the location of points entered depends on the current view on screen (the zoom and pan locations). In mouse mode you can use menus and icons. When the program is running in mouse mode, the screen cursor is an arrow.

The icon at the far right of the Status Bar shows whether you are in mouse mode (arrow) or absolute mode (plus sign).

Numbering of Buttons

When your digitizer is in mouse mode, certain buttons on the pointing device are equivalent to mouse buttons – refer to your digitizer documentation if you have trouble. When your digitizer is in absolute mode, the following numbered buttons have the following functions:

- Button 0 - same as left mouse button
- Button 1 - Toggle Digitizer Mode
- Button 2 - Pan to Cursor Location (use this if the cursor goes out of sight)
- Button 3 - same as right mouse button

This is the default configuration. You can change these button assignments with the CONFIGURE command.

Digitizer scale and origin

By default, one inch on the digitizer tablet is one inch in your drawing. Also by default, the lower left corner of the digitizer corresponds to the coordinates (0,0) in your drawing. You can change these values with the DRAW ALIGN, SET ORIGIN, and CONFIGURE commands below.

The **origin** is the coordinate position of the point on the digitizer surface which equals point (0,0) in your drawing. For instance, if you enter X=5 and Y=5, then the point 5 inches right and 5 inches up from the lower left corner of the digitizer surface is the origin.

The **scale** is the number of drawing inches per digitizer inch. If you enter 2, then one inch on the digitizer tablet equals 2 inches in the drawing. If you enter 0.5, then one inch on the digitizer equals ½ inch in the drawing.

DIGITIZER FUNCTIONS

The digitizer commands and WINTAB digitizer interface are not available in PatternMaker Home version. Your digitizer will still work as a mouse, but the scaling may not be correct.

The following functions are found under the **Settings** menu, in the Digitizer submenu, and are discussed in detail in Chapter 14, The Settings Menu:

DRAW ALIGN

(Expert/Marker Versions only)

Draw Align lets you change the digitizer scale and origin with graphical inputs. The length and orientation of a line on the digitizer is set to match a line on the screen.

TOGGLE MODE

(Expert/Marker Versions only)

This function switches the digitizer between absolute mode and mouse mode. You will use this command frequently when you are tracing drawings into the computer, because you need absolute mode to trace, and mouse mode to select commands and options.

You can select TOGGLE MODE from the menu, by pressing <F8>, or by the following methods:

If you are in mouse mode (arrow cursor), click on the Toggle Mode icon at the far right of the Status Bar. If you are in absolute mode (plus cursor), click Button 1 on the digitizer mouse.

SET ORIGIN

(Expert/Marker Versions only)

Use SET ORIGIN if you want the digitizer area to cover a different location in your drawing. This function does not change the scale. To set the origin, first enter a point in your drawing on screen. Then enter the point on the digitizer that corresponds to the screen point.

CONFIGURE

(Expert/Marker Versions only)

The CONFIGURE DIGITIZER function allows you to assign any PatternMaker command or shortcut to the buttons on your digitizer.

This command also lets you set the digitizer scale and origin, but with typed inputs (as opposed to DRAW ALIGN, above).

GLOSSARY

absolute mode

One of two modes available when using a *digitizer tablet*. In this mode, the digitizer tells the program where the cursor is.

arc

A curved line segment. An arc has three points – one at each end, and a “control point” which acts like a magnet to control the shape of the curve.

armscye

Armhole

click

Press the left mouse button one time and release it.

command line

The blue area at the bottom of the PatternMaker window which displays command information.

coordinates

A system used to indicate position on a grid. The grid can measure units either in inches or in centimeters. The *X coordinate* counts units in a horizontal direction, and the *Y coordinate* counts units in a vertical direction.

digitizer (digitizer tablet)

A computer accessory used to draw or trace lines and shapes and communicate that information to the computer. Digitizers can range from the size of a notepad to the size of a kitchen table.

dimension (Dim)

One of four types of *objects* in PatternMaker. Dimension objects are used to measure straight-line distances between points.

double-click

Press and release the left mouse button two times, quickly.

drop-down menu

A sub-menu that appears (“drops down”) when you click on an item in the *menu bar*.

grading

After you've drafted a pattern in one size, grading is the process of defining “rules” that tell the program how to move certain points of the pattern to create larger and smaller sizes.

group

n. two or more objects which actions are performed upon as if they were one unit.

v. to select two or more objects and tell the program to consider them as one unit.

icons

Small pictures that represent commands. Click on an icon to activate the corresponding command.

insertion point

The location on an object (one of its vertices) where you click to select the object, or where you click in the drawing to position the object.

interpolate

To make an estimation based on surrounding information. A grading arrow can be interpolated by using the values of the arrows on either side of it.

library

A collection of *symbols* from which you can select and insert into your drawing.

macro

A small independent program that is run by PatternMaker to automatically draw pre-designed garments according to a user's measurements.

menu bar

The line of words along the top of the PatternMaker window which contains all the program commands.

mouse mode

One of two modes available when using a *digitizer tablet*. In this mode, the digitizer works like an ordinary mouse.

object

Something that you draw in PatternMaker. There are four types of Objects: Poly, Dim, Text, and Symbol.

origin (digitizers)

The position that the *coordinates* (0, 0) are measured from.

point

1) A *vertex* of an object; 2) a location in the drawing. The meaning should be clear from the context.

polar coordinates

A method of describing the location of a point using the length of a line and the direction (in degrees) in which it points.

polygon (Poly)

One of four types of *objects* in PatternMaker. Any object that is not a Symbol, Text, or a Dimension object is a Polygon object. Polygons can be open or closed, and can have any number of vertices (points).

scale (digitizers)

The ratio between the size of the object to be digitized and the size you want the object to be in your drawing. A scale of “4” means that 1 inch on the digitized object equals 4 inches in your drawing. In other words, this object is 1/4 size.

segment

A section of an object between any two points.

status bar

The area of the PatternMaker window under the *menu bar*. This area shows the current drawing color, fill pattern, line type and other settings, and also the current mouse position and the current command.

symbol

One of four types of *objects* in PatternMaker. Symbols consist of one or more objects grouped together with a single insertion point. The single insertion point allows you to add several objects to your drawing in a single step. Symbols can include such things as grainlines, buttonholes, or copyright information.

text

One of four types of *objects* in PatternMaker. Text is used to insert labels on pattern pieces or add descriptive information.

vertex (vertices - pl.)

The beginning/end of a line segment, or the place where two line segments come together. For example, a triangle has three vertices, one at each corner.

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